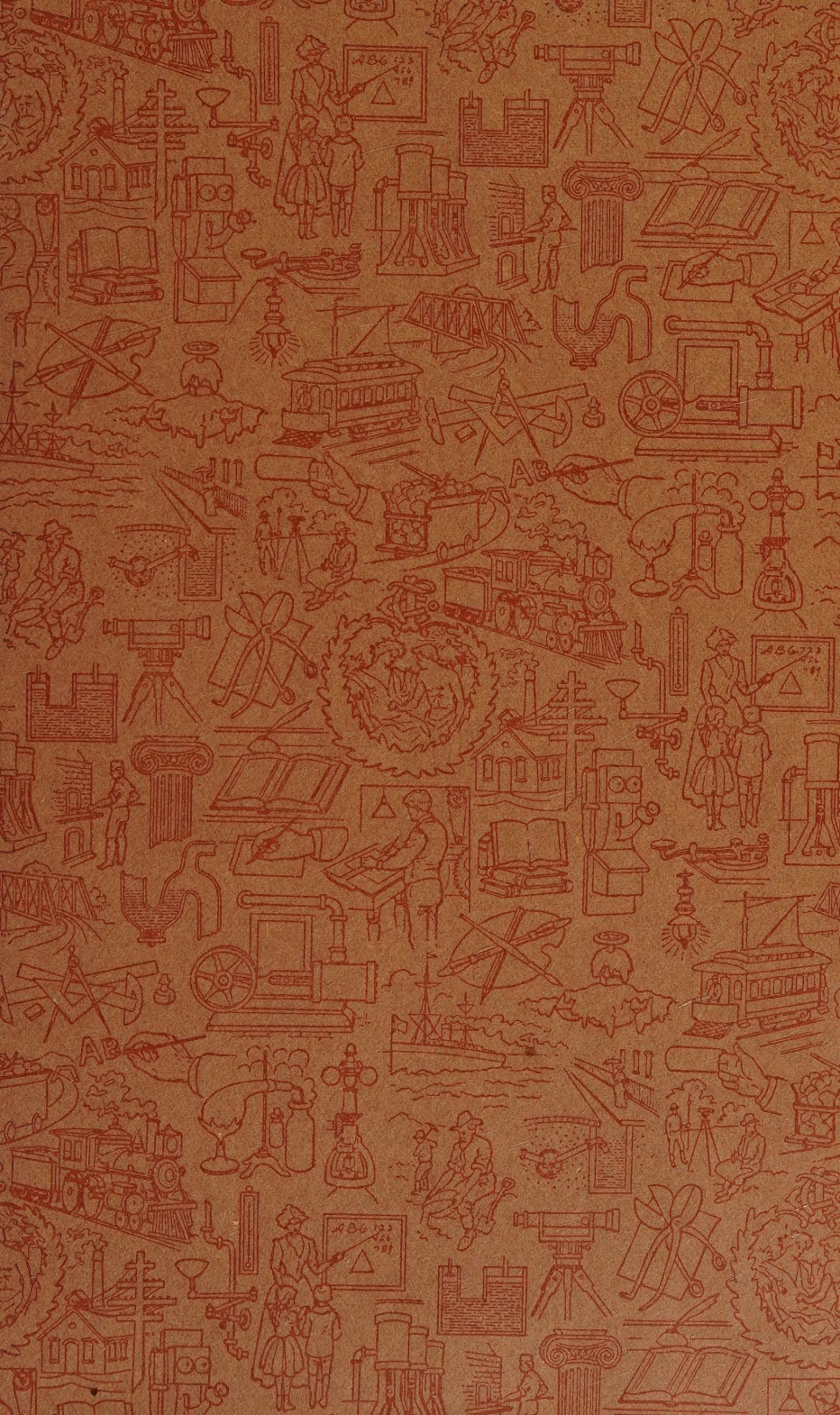

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HISTORY OF ARCHITECTURE AND ORNAMENT
(CONTINUED)

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HISTORY OF ARCHITECTURE AND ORNAMENT

(PART 2)—*Continued*

GOTHIC ARCHITECTURE

(1200 A. D. to 1500 A. D.)

INTRODUCTION

Explanatory Remark.—The study of architectural development throughout civilized Europe up to the beginning of the 13th century shows a certain amount of Roman influence. This influence varies according to the geographical position of the examples cited, and the periods during which the examples were built. Structures erected in Southern Europe where commerce and intercourse preserved the traditions of the ancient Roman civilization, possess details of Italian origin throughout all periods, whereas in the Romanesque buildings in the North, classic influences can scarcely be traced after the close of the 11th century.

Before taking up the study of Gothic architecture it should therefore be understood that the distinction between the Romanesque and the Gothic styles is based on the gradual extinction of such architectural details and structural principles as characterize the constructions of the Roman emperors.

It is not the pointed arch and the great expanse of window opening as distinguished from the semicircular arch and the lintel topped windows, that separate the styles, but the

structural conditions that made these forms of roof and openings possible or necessary. The narrow lancet window would have been of little use in the thick masonry of the Romans, and the great openings that characterize the cathedrals would have rendered the walls too weak to withstand the vault thrusts. On the other hand, the vault thrusts of the cathedrals were taken up by buttresses, and the intermediate walls being mere enclosing screens possessed no structural significance and required no heavy architectural treatment.

125. The architectural style about to be considered, although developed by a process of evolution from the structural systems of ancient Rome, is, in its perfected form, entirely opposed to classic architecture in principle, purpose, and design. The term *Gothic* has been applied to this style because it was developed by the descendants of the Goths that overthrew the Roman Empire in 476 A. D. The term is a misnomer, however, for these early Goths were a barbarous, uncultured people, whereas Gothic architecture from the 12th to the 15th century was the embodiment of refinement and taste in both construction and design. The style developed from purely local conditions, and it can therefore be readily understood that the more remote from Rome, the purer one finds the art. For this reason, Gothic architecture found its greatest development in England, for that country was not only far to the north of Italy, but it was entirely isolated from the Continent by its surrounding water.

126. At the beginning of the 13th century, several of the nations of Western Europe were well established. The Western Roman Empire now had its center in Germany, and the kingdoms of Italy, France, England, and Spain were developing into individual states. By this time the Church had become a most powerful factor in civilization. The popes held themselves to be above the kings and emperors, and therefore dictated much of the political policy of the various governments.

The clergy, on account of their learning, were consulted in temporal affairs, and in this way received many individuals

of wealth and power into their religious orders. In Germany, many of the abbots and bishops were royal princes.

The general forms of Christianity had varied materially during the past few centuries. The bodies or portions of the bodies of the saints and martyrs were honored in the churches of the community wherein these celebrities had lived. The veneration of the Virgin Mary and other forms of ritual were the cause of some additions to the cathedral plans. Lady chapels, for the devotions to the Virgin, were erected in many of the religious structures, as well as smaller chapels for the reverence of various saints and martyrs. Chantry chapels, where masses for the dead were sung, found a place in many churches, and the numerous ceremonies requiring processions, etc. made necessary the introduction of an ambulatory, where they could take place.

Heretofore all important medieval buildings had been churches and abbeys, but now the growth of towns and consequent increase of wealth led to municipal rivalries and the erection of magnificent secular buildings. In Italy, the country became divided into small sections, to each of which belonged one or more of the larger towns. These sections afterward became principalities. In Germany, the towns united and formed *leagues* for mutual protection and the regulation of trade.

127. The climate of Northern Europe being entirely different from that of Southern Europe, a corresponding difference in architecture must be expected, but more than a mere difference of climate is to be looked for as responsible for the vast change in the system of design.

In Southern Europe the sun is high in the heavens during the day; hence, variation of light and shadow can best be obtained by low, projecting cornices, string courses, and other horizontal details. In the northern part, save at noon, the sun takes a low course through the sky not far above the horizon. Therefore, pinnacles, towers, and vertical elements are the details required to cast shadows and vary the monotony by light and shade.

CHARACTERISTICS

128. The principles of Gothic architecture were the same throughout Western Europe. Gothic construction of the 13th century was the direct outcome of the development of Romanesque vaulting. Its strongest characteristic is the persistent application of the pointed arch. As has already been shown, the fully developed Gothic vault was pointed, instead of semicircular like the Roman vaults, and as the window openings were in the bays of the aisle and nave directly under these vaults, it is not surprising that the window heads were made pointed in order to conform to the vault outlines. The form once adopted, became general, and the pointed arch was used everywhere for doors, windows, arcades, and vaulting.

129. The Gothic masons developed the scientific use of stone as a building material beyond anything heretofore known. They heaped it up in towers and pinnacles and carved it in delicate lacelike patterns until the roofs of their constructions showed a veritable forest of small spires. They constructed flying buttresses of it, to act as props to the thrusting superstructure, but designed to present a marvel of artistic ingenuity. They hung it in ponderous pendants from intersecting vault crowns, where a weight was necessary to offset an upward thrust, and finally they cut it in the thinnest of slabs for decorative purposes and executed designs that were marvels of construction and craftsmanship.

130. Every wall in Gothic construction was reinforced by a buttress, which was frequently carried up in a pinnacle to give it more weight and stability. Every arch thrust was counteracted by another arch thrust, until the force was scientifically taken up by buttresses and carried to terra firma. Gothic structures consisted of a skeleton of piers, columns, groin ribs, buttresses, and flying buttresses, the walls and infilling being mere enclosures. The walls were pierced by windows whose subdivision by mullions and split mullions resolved itself into a series of lacelike effects termed *tracery*.

Tracery itself presents the solution of some of the most complicated problems in geometrical construction that are known. These details of construction required other special details to fit them, and led to the introduction of entirely new forms of capitals, columns, moldings, and bases.

131. The architectural style was adapted to a construction of small, rectangular stones with wide joints, which was a compromise between the rubble walls of the Romans and the solid-block stone constructions of the Greeks.

The available stone was hard and durable and could be split into small sections, but there was neither marble nor granite that the Romans found plentiful in their domains. The Gothic architects were forced to construct large buildings from small blocks of stone in contrast to the small Greek buildings of large single pieces. The vaulting, as has heretofore been stated, was developed from the Romanesque, but it became more complicated as the style advanced, and the increase in the number and the variety in the design of ribs that necessarily ensued forms the most fascinating detail of the style.

132. Painted glass formed an important detail in the style, as the richly mullioned windows came to be regarded simply as frames for the wonderful transparent pictures teaching facts and details of Bible history and dogmatic theory. In Northern Europe, painted glass was the principal form of decoration. The interiors of the walls were kept as flat as possible, and piers and buttresses existed on the outside only.

133. The medieval cathedral occupied in its time a position similar to the modern school, library, museum, and picture gallery. Education emanated from the churches, as there were no schools, books, nor outside teachers. The sculpture and painted glass told eloquent stories of the creation of the world, the redemption of man, the reward of virtue, and the punishment of vice.

The construction of these buildings was not a matter of a few years nor even a lifetime. They were carried on from

generation to generation, and many structures that were founded in the 11th and 12th centuries remained unfinished at the time of the Reformation in the 16th century. Thus, in almost any one of them, the architectural developments may be traced over a period of four centuries.

134. The plans of these structures are usually Latin crosses, the short arms of which, extending north and south, are formed by the transept near the east end, and a tower usually surmounts the crossing. Two rows of columns divide the long arm into a nave and two aisles.

The piers each side of the nave are connected by arches, over which the side walls extend to the roof vault. The roof over the aisles reaches half way up these nave side walls, and the space between the aisle vaults and the roof over them is called the *triforium*, or blind story (see Fig. 62), while the wall of the nave above the aisle roofs is termed the *clearstory*, as it is pierced with windows to light the nave. Variations of these conditions characterize the cathedrals of different countries and individual buildings, but the general distribution in all cases is the same as just stated.

135. Besides the cathedrals and churches, there were the monasteries erected by the various religious orders for the education of novices in theology and probationary students in art, music, architecture, etc. Each of these religious orders was devoted to some one pursuit. The Augustinian monks favored preaching and theology. The Friars were missionaries. The Benedictine monks were the most learned, and to them is due the preservation of history through the dark ages. They taught illuminating and execution of manuscripts, for there were no printing presses in those days. The Cistercian monk was the friend of the poor, encouraging agriculture and industrial pursuits, and the Cluniac monk was the student and artist. A complete monastery included in its buildings a church, a chapter house, a sacristy, a dormitory, a capacious cellar for the storage of wines, beer, and oil, a refractory, or dining room, a kitchen, a lavatory, granaries, outbuildings, etc.

ENGLISH GOTHIC

INFLUENCES

136. Geographical.—England as an island with many bays and harbors was naturally a great commercial country (see Fig. 53). Her isolation assisted in the development of prominent national characteristics in her people, among the most important of which was the habit of travel in foreign countries. Thus, while her ships imported stone and other building material from foreign lands, her citizens acquired foreign ideas that influenced her architectural development without causing it to become a servile copy. Owing to her isolation and northerly position, England was less affected by Roman art than any of the other Christian countries; hence, the new architectural style developed with great purity.

137. Geological.—The varieties of building stone throughout the island affected the style locally during the early period, but as roads were improved and means of transportation became perfected, stone from all parts was imported where required. During the middle ages, stone was imported from Normandy in ships, as this was easier than conveying it by horses from remote parts of the island. Brick was also largely used in some communities, as were also terra cotta and soft limestone. In the forest districts, buildings were erected of wood, and many with an open-timber construction of part wood and part brick or stone.

138. Climatic.—The climate, though cool, does not admit of heavy frosts, and building can be carried on throughout the greater part of the year. But cold, high winds accompanied by fog and rain necessitate due protection against

these elements. Consequently, throughout England are found small entrances protected by deep porches, to exclude the weather.

139. Religious.—By the end of the 10th century, the greater part of Europe had embraced Christianity. The

Fig. 53

power of the Church, with its head at Rome, had so grown that the popes had in several instances overruled the civic authority of the kings. Attempts to establish in England an independence of Church influences had been repeatedly made

and failed, but the efforts did not take an extreme character until after the Gothic period.

The different religious orders had come into existence and were well established. Their monasteries and other buildings exhibiting strong points of difference. Many of the English cathedrals were built over the foundations of old monasteries, which caused various irregularities of plan that are not observable in the continental cathedrals.

140. Political and Historical.—Rome withdrew her army from England about the year 420 and left the Britons to shift for themselves. In 450, Teutonic tribes from Northern Germany invaded Britain and drove out the native Britons or enslaved them. These barbarous tribes cared nothing for the Roman arts or language, and unlike the Franks and Goths, they did not adopt the religion and language.

The migration of these Teutonic tribes continued until the end of the 6th century, so at that time what had been a Christian province of Rome became the heathen land of the Angles and Saxons. At the beginning of the 7th century, Augustine, a Roman missionary, arrived in England and converted the Anglo-Saxons to Christianity, and, finally, in the early part of the 9th century, the country became a united Christian kingdom under the Saxon King Egbert, a contemporary and friend of Charlemagne. The country was then called England (land of the Angles).

In 1066, William, Duke of Normandy (see Art. **85**), crossed the English Channel, conquered the country, and caused a complete revolution in the manners and customs of the people by introducing from France the system of feudal government.

CHARACTERISTICS

141. The development of Gothic architecture in England is freer from foreign influences than in any other part of Europe. It can be divided into four general periods, including the late Romanesque, as follows: Norman or Romanesque, Early English, Decorated, and Perpendicular.

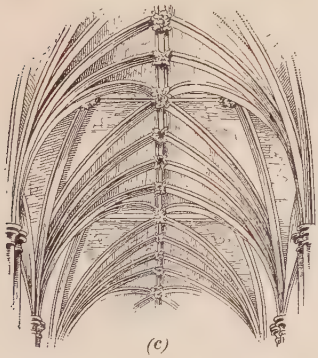
Preceding all of this there was an Anglo-Saxon style of English architecture that existed from the middle of the 5th to the middle of the 11th century (450 to 1066 A. D.). The buildings of this period were sometimes composed of fragments or were rude copies of Roman architecture executed largely in timber construction, and are of importance here only as a suggestion of the origin of much of the timber construction in the later Gothic styles in England.

142. The leading characteristic of each period of the English Gothic style lies in the system of vaulting and the distribution of the ribs over the soffits of the vault. Therefore, careful attention should be given to this detail. The evolution of the medieval vault from the Roman system has heretofore been discussed. Briefly, the Romans designed their vaults to fit the plan space to be covered without regard to the groins or intersections, which were left to take care of themselves. The medieval builders laid out the groin ribs first and then built the vault over them. Their problem was to cover with stone the nave of a church of the basilican plan and at the same time provide means of lighting the interior. The stone vault rendered the structure comparatively safe against fire, and a wooden roof was constructed above the stone vault, to keep out the weather. Now, from the Romanesque vaulting in the 12th century, each successive period is marked by distinguishing characteristics of the vault ribs.

143. Norman Vaulting (12th Century).—The vaulting in England during the 12th century corresponded to the late Romanesque on the Continent, but varied from it somewhat owing to its remoteness from Rome. The semicircular diagonal rib was used largely with stilted arches at the springing of the transverse or longitudinal arches, as shown in Fig. 54 (*a*). The introduction of the pointed arch improved matters greatly, but even then semicircular ribs were used for the diagonals. Norman vaults and arches were semicircular, as may be seen in Peterborough Cathedral, Fig. 63, and were groined over square bays or over oblong bays, with the narrower arch stilted, or later on pointed.

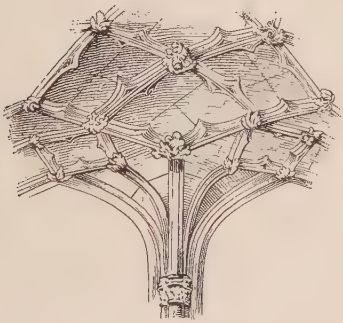
(a)

(b)



(c)

(d)



(e)

(f)

FIG. 54

144. Early English Vaulting (13th Century).—The Early English vaulting surmounted all the difficulties of difference in span by using the pointed arch over all plan arrangements and semicircular ribs for the groins. The ribs of all vaults were designed and built first, and then the surfaces between them were filled in with *severies*, or infilling, as shown at *d* in Fig. 55. The surfaces of these severies were seldom plain curves, but usually winding or warped surfaces so constructed that their weight and thrust were directed toward the pier supporting the ribs and not toward the wall ribs

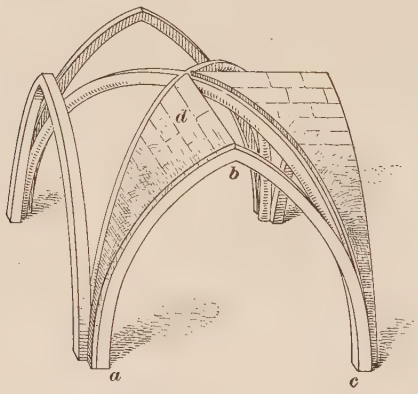


FIG. 55

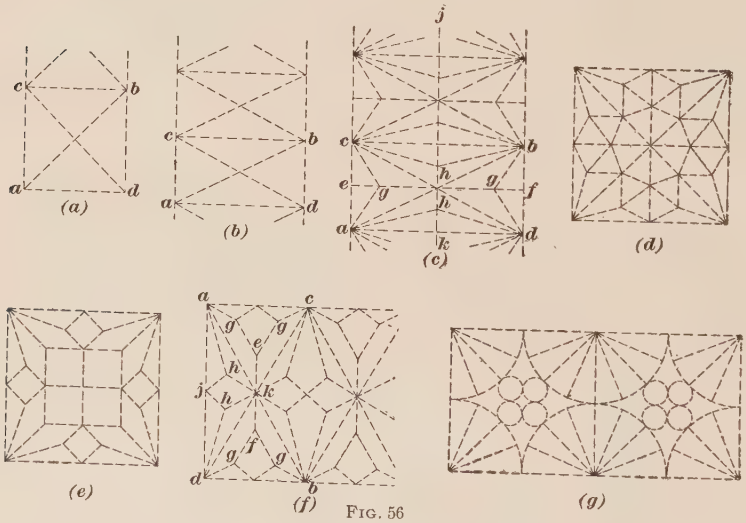


FIG. 56

themselves. The vaults were *quadripartite*, as the ribs divided them into four parts as shown in plan in Fig. 56 (*b*)

and in perspective in Fig. 54 (*b*). Later in the 13th century, extra ribs were introduced into the vaults between the transverse and diagonal ribs as at *cg*, *ag*, *ch*, *ah*, etc., Fig. 56 (*c*). These ribs increased the strength of the vaulting by reducing the area of the surfaces to be "filled in," and ridge ribs *ef* and *jk*, Fig. 56 (*c*), were then introduced to take up the thrust of these intermediates, as shown in Fig. 54 (*c*). Owing to the increase in number of ribs they became lighter in section and were richly molded with carved *bosses*, or buttons, at their points of intersection.

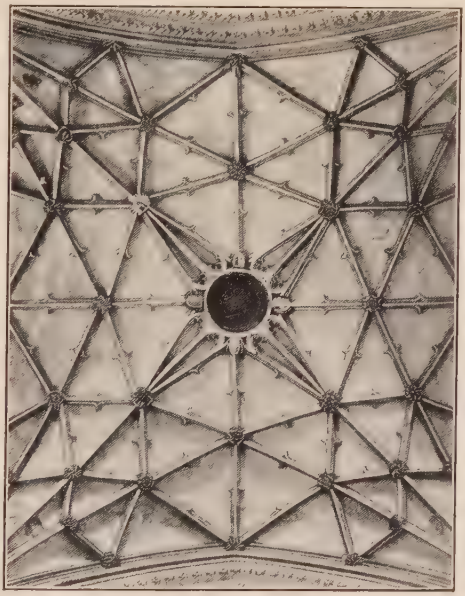


Fig. 57

145. Decorated Vaulting (14th Century).—A further elaboration of the system of vault ribs marked the development of vaulting in the 14th century, until the surface of the vaults presented a very complicated appearance, although the construction was still very simple. A new set of ribs, lying entirely in the vault soffit and not springing from the piers, now makes its appearance, and short, little ribs extend from the intermediates to the ridge ribs, as at *hj*, *hk*, and *eg*, Fig. 56 (*f*). This is called *lierne vaulting*, and presents the appearance shown in Fig. 54 (*d*).

This progressive elaboration of the vaulting ribs increased until the spaces between the ribs became so small that each could be spanned by a single stone, giving to the system the name of **rib-and-panel vaulting**; while, owing to the

FIG. 58

form of the plan, the designs are frequently termed *stellar vaulting* (see Fig. 57). Stellar and lierne vaulting combined is shown in Fig. 54 (*e*) and in plan in Fig. 56 (*e*), while Fig. 56 (*d*) shows a diagram of the plan of Fig. 57.

146. Perpendicular Vaulting (15th Century).—The development of the plan of the stellar designs of vaulting brought about an entirely different arrangement known as *fan vaulting*. In this style the vault ribs radiate from the top of the pier, or shaft, and spread out fanlike in the form of an inverted cone, as shown in Fig. 58. These spreading

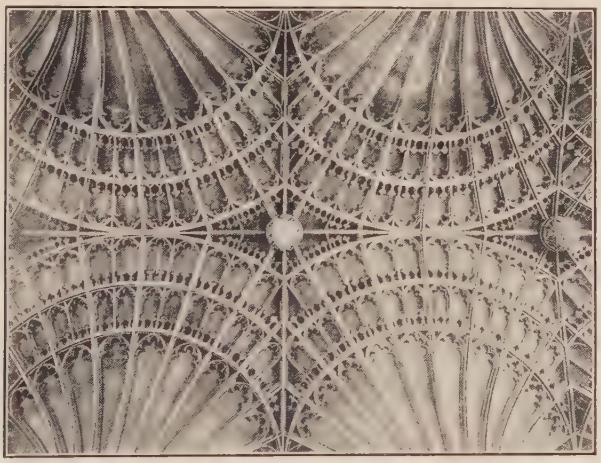


Fig. 59

ribs were connected at intervals by short ribs, and the crown of the vault between these inverted cones became a flat surface to be filled in, as shown in Fig. 54 (*f*) and 56 (*g*).

With this complication in design came a change in construction. The ribs were now so numerous and the spaces between them so small that it seemed useless to consider them separately. Consequently, toward the end of the Perpendicular period the walls were laid up and arched over in jointed masonry, and when the mortar was set and dry the ribs and panels were carved on the face of the vault soffits (see Figs. 59 and 60). The structural character of the ribs

FIG. 60

ceased, and the ribs came into existence purely as ornament —ornament that was unarchitectural, as it asserted itself to be a part of the construction whereas in reality it was not. The ribs no longer had any architectural significance; they were simply decorations on the surface of the vault.

147. Timber Roofs.—As already mentioned, over the vaulted naves of the churches, timber roofs were constructed to protect the structure from the weather, and in other build-

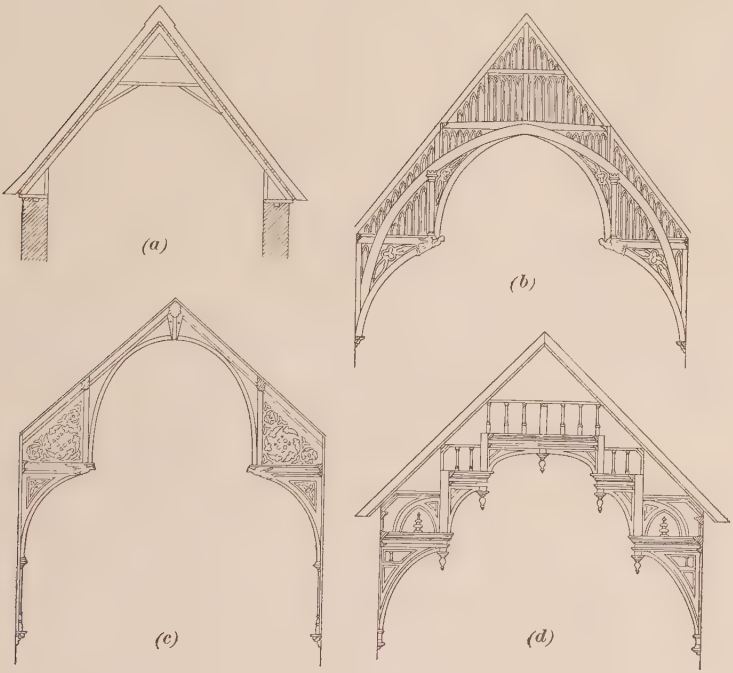


Fig. 61

ings that were not vaulted, these roofs partook of considerable elaboration in construction and variety of design. Open-timber roofs, as they are called, are a characteristic feature of English Gothic architecture and are classified under four heads, according to their construction; namely, *tie-beam*, *trussed-rafter*, *hammer-beam*, and *collar-braced roofs*.

The tie-beam roof consists of two rafters inclined to the proper angle and held together at or near their bearings by a tie-beam across the building. Elaborations of this principle and further complications were introduced by ornamental work being placed above the tie-beam when the pitch was steep.

In the trussed-rafter roof, the low tie-beam is done away with, and braces are used to strengthen the rafter at the top and bottom, as shown in Fig. 61 (*a*). This arrangement permitted the pointed vault to extend well up into the roof construction.

The hammer-beam roof consisted of an arrangement of struts and ties ornamented with curved braces at the angles, all of which were tenoned and pinned together. Fig. 61 (*c*) shows a hammer-beam roof, and at (*d*) is shown a double-hammered beam construction.

The collar-braced roof was a modification of the hammer beam, and consisted of a rafter braced up to the ridge with curved struts, as shown in Fig. 61 (*b*).

The timbers of these wooden constructions were richly carved and elaborated, some of the roofs producing decorative features of great beauty.

EXAMPLES

148. Nearly all of the English cathedrals were commenced in the Norman period, and their construction continued throughout the four centuries of Gothic development. Any one of these structures, therefore, will show in its various parts the characteristics of each individual period.

149. Peterborough Cathedral.—In Fig. 62 (*a*) is shown a transverse section through the nave and aisles of Peterborough Cathedral, which was built during the Norman period. The aisles were vaulted as shown, but the nave was covered only by a wooden roof.

In the nave, as shown in elevation at (*b*), three tiers of arches are supported by the piers, the first *a* opening to

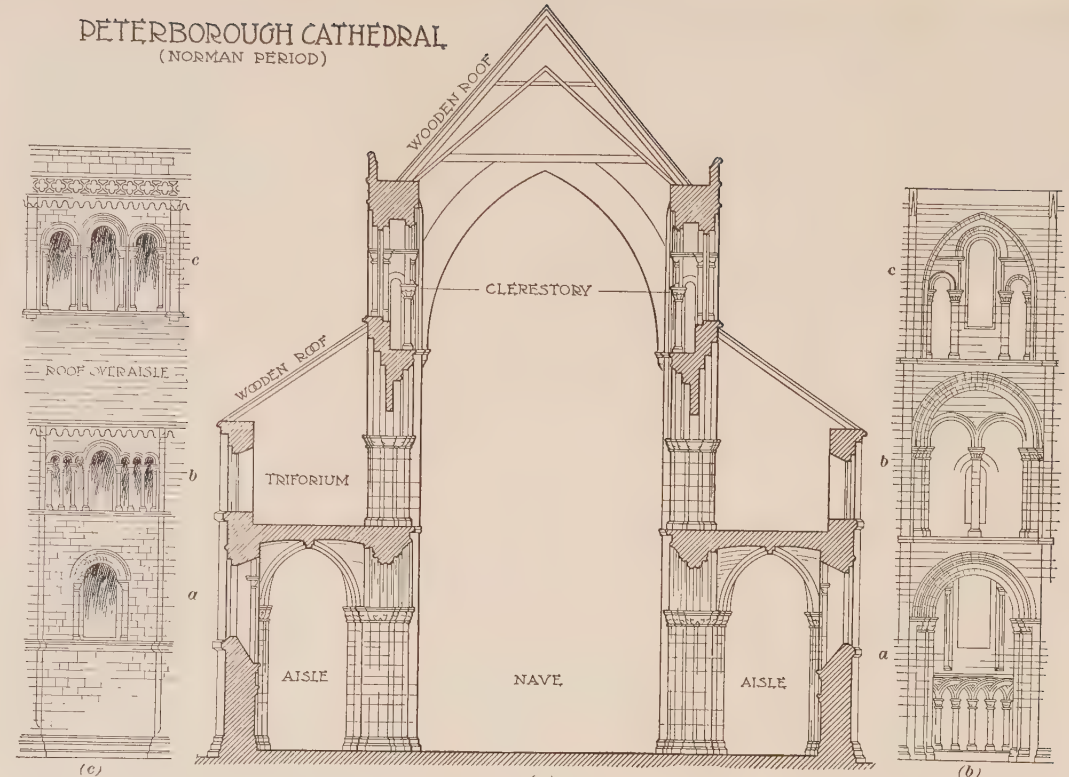

PETERBOROUGH CATHEDRAL
(NORMAN PERIOD)
WOODEN ROOF
CLERESTORY
WOODEN ROOF
TRIFORIUM
AISLE
NAVE
AISLE
ROOF OVER AISLE
c
b
a
c
b
a
(c)
EXTERIOR ELEVATION OF AISLE WALL & CLERESTORY
(a)
SECTION
(b)
INTERIOR ELEVATION OF NAVE WALL

FIG. 62

FIG. 63

the aisle, the next *b* disclosing the triforium, and the third *c* showing the clearstory. These openings are covered by semicircular arches, characteristic of the Norman period, and the details are extremely simple, tending to severity.

On the outside elevation, as shown in (*c*), a single semicircular-headed window *a* in each bay lights the aisle, while a small arcade above *b* pierces the wall of the triforium. Triple windows above at *c*, mark the clearstory. All of these details are extremely simple, and no attempt is made to carve or decorate the capitals or moldings elaborately.

Peterborough Cathedral was begun in 1117, and as a portion of it was completed before the end of the 12th century, it can be taken as a pure example of the Norman period. In Fig. 63 is shown the interior.

150. Salisbury Cathedral.—In Fig. 64 are shown similar sectional views of Salisbury Cathedral, which was built between the years 1220 and 1258 and is therefore entirely Early English in design. The nave as well as the aisle is vaulted, with a pointed arch for the transverse ribs, and the thrust of the nave vault is transmitted to the buttress *b* by a brace *a* in the form of a *flying buttress*. This flying buttress finishes flush with the wooden roof of the aisle and therefore is not observable on the outside of the building. Here then, in the Early English style, is introduced a new architectural detail, the flying buttress, made necessary by the vaulting of the nave but so concealed under the aisle roof that it does not appear as an exterior detail.

In Fig. 64 (*b*) is shown an inside elevation of the nave, wherein pointed arches replace the semicircular arch of the Norman period, and at (*c*) the outside elevation is shown, with the double windows that light the aisle and the triple windows in the clearstory. There are no exterior windows in the triforium here, and the wooden roof over the aisle vaulting extends from the sill of the clearstory windows to the top of the aisle wall. An interior view of the Salisbury Cathedral is shown in Fig. 65.

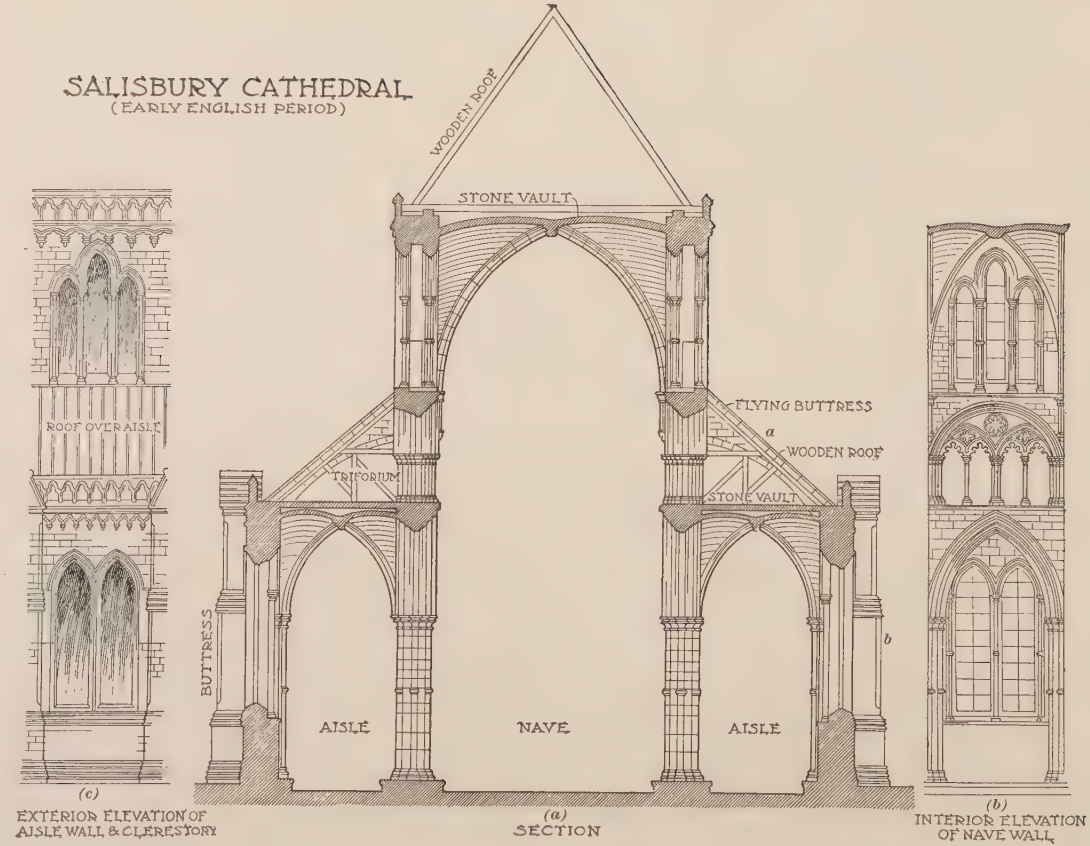

SALISBURY CATHEDRAL
(EARLY ENGLISH PERIOD)
WOODEN ROOF
STONE VAULT
FLYING BUTTRESS
a
WOODEN ROOF
TRIFORIUM
STONE VAULT
ROOF OVER AISLE
BUTTRESS
AISLE
NAVE
AISLE
b
(c)
EXTERIOR ELEVATION OF AISLE WALL & CLERESTORY
(a)
SECTION
(b)
INTERIOR ELEVATION OF NAVE WALL

FIG. 64

253 FIG. 65

151. Lichfield Cathedral.—A transverse section through the Lichfield Cathedral, Fig. 66 (*a*), shows the flying buttresses *a* above the aisle roof, and the buttresses *b* weighted with pinnacles *c* so as to add to their stability. This method of construction is characteristic of the Decorated, or 14th century, period. The additional intermediate ribs in the nave vault are also shown in this figure.

The inside elevation of the nave, at (*b*), shows a triangular window with three *trefoil*, or three-leaved, openings *a* in the clearstory, and a pair of pointed windows *b* in the triforium, and one broad pointed window in the aisle wall. The clearstory and aisle windows are divided by mullions supporting smaller pointed arches that in turn support the stone filling above. This filling is pierced with openings in the form of quatrefoils and trefoils. This method of piercing the wall and thus decorating the upper part of the windows is called tracery, which will be taken up later.

On the outside elevation, at (*c*), the aisle and clearstory windows are shown as within with three foliated piercings under the point of the arch. The buttresses show applied decoration in the form of decorated gables at *b*, as well as actual gables over their tops at *a* and *c*. Thus, it will readily be seen that the tendency of the style is toward elaboration of detail and false structural devices, as opposed to the Early English style, which was characterized by simple detail and sincere construction.

152. Winchester Cathedral.—The characteristics of the 15th century vaulting have already been discussed, but the development of the general construction in the Perpendicular period is well shown in Fig. 67 (*a*), which illustrates a section through the nave of the Winchester Cathedral. Here are clearly shown the ribs of the complex vaulting, and the effect of this system on the shape of the vault. Instead of a high-pointed vault, as over the nave of the Salisbury Cathedral, Fig. 64, the vault was constructed of a series of short arcs lying in a comparatively flat plane. In consequence, the window heads, which took their form from the

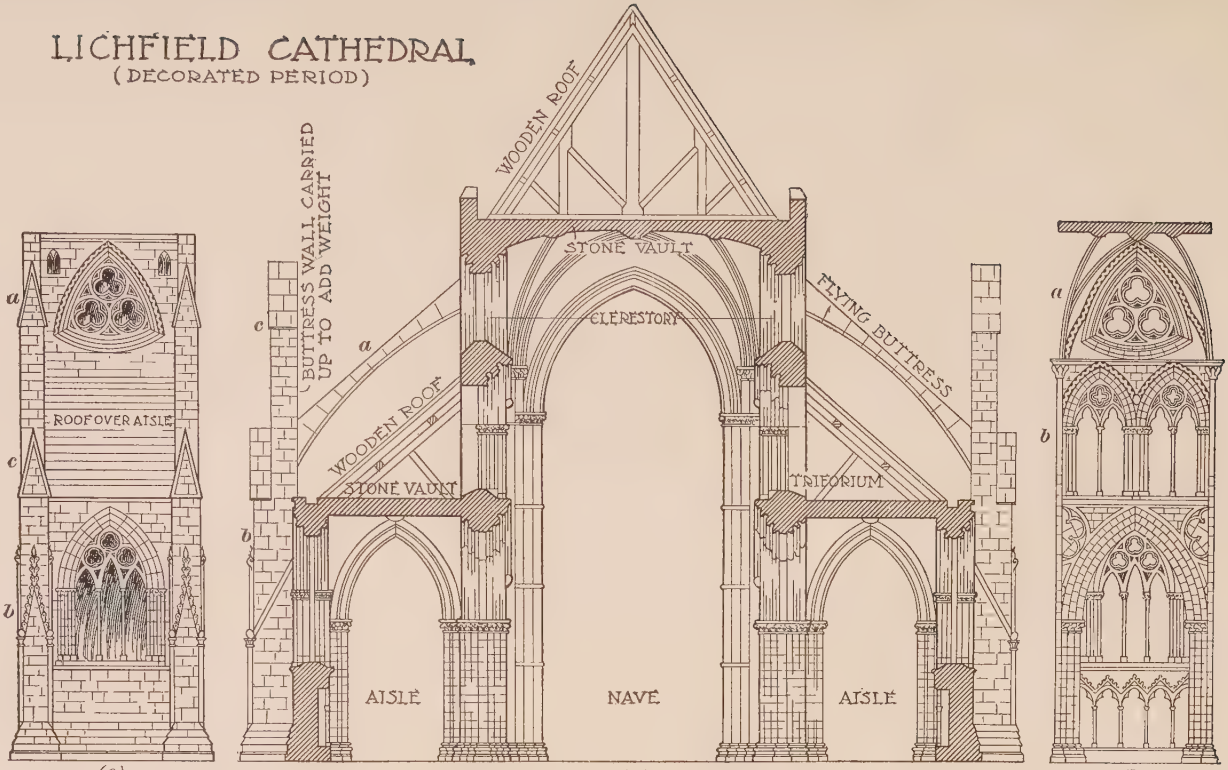

LICHFIELD CATHEDRAL
(DECORATED PERIOD)
WOODEN ROOF
BUTTRESS WALL CARRIED UP TO ADD WEIGHT
STONE VAULT
CLERESTORY
FLYING BUTTRESS
WOODEN ROOF
STONE VAULT
TRIFORIUM
ROOF OVER AISLE
a
b
c
AISLE
NAVE
AISLE
(c)
EXTERIOR ELEVATION OF AISLE WALL & CLERESTORY
(a)
SECTION
(b)
INTERIOR ELEVATION OF NAVE WALL

FIG. 66

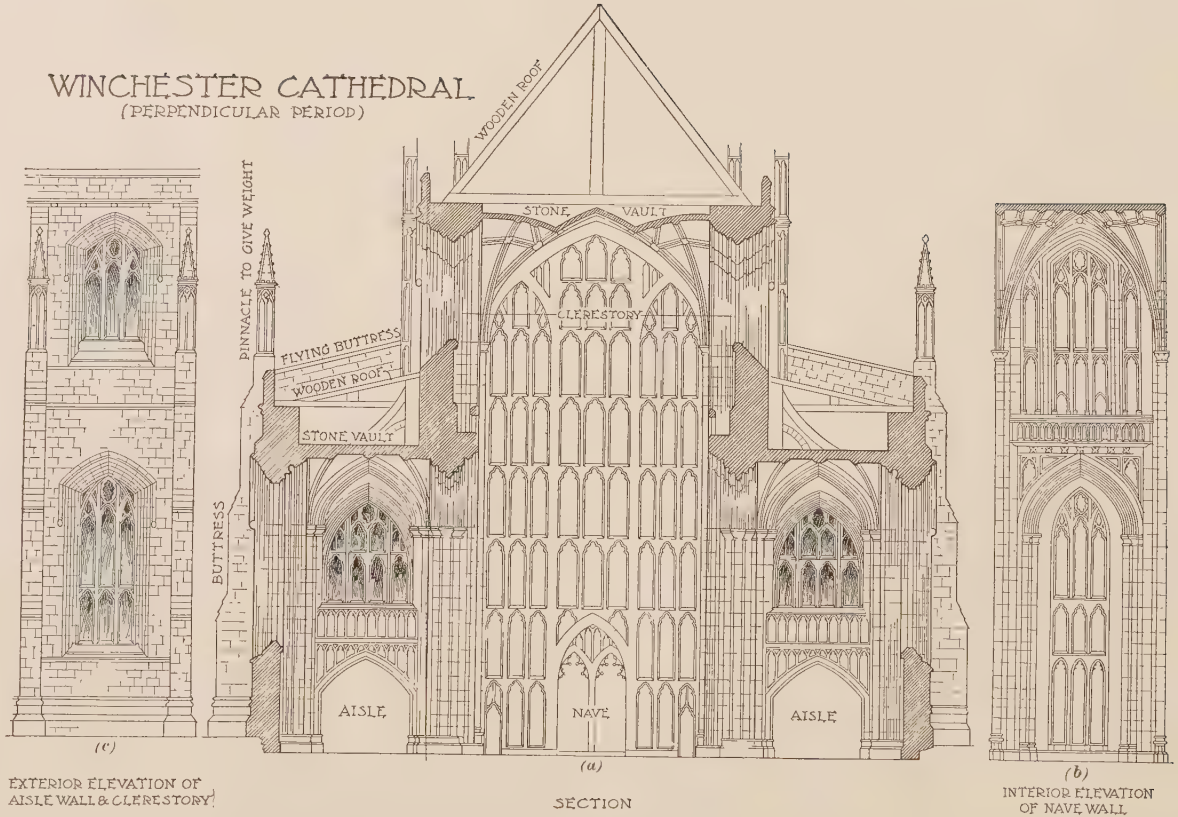

WINCHESTER CATHEDRAL
(PERPENDICULAR PERIOD)
WOODEN ROOF
STONE VAULT
CLERESTORY
PINNACLE TO GIVE WEIGHT
FLYING BUTTRESS
WOODEN ROOF
STONE VAULT
BUTTRESS
AISLE
NAVE
AISLE
(c)
(a)
(b)
EXTERIOR ELEVATION OF AISLE WALL & CLERESTORY
SECTION
INTERIOR ELEVATION OF NAVE WALL

FIG. 67

vault, also become flattened and the pointed arch under which pairs and triplets are grouped, then assumed a low, broad, and squat-like contour that was struck from four centers. All groupings tended to a multiplication of perpendicular lines; consequently, the window openings were arranged to present the grouping of a lot of perpendicular panes with elaborate tracery at the top.

The interior elevation of the nave, at (*b*), shows the depressed, or drop, arch in the nave arcade, with elaborate panelwork and decoration carved about it. The clearstory windows consist of a group of three nearly rectangular openings, the tops of which are given a pointed effect by means of tracery. The structural significance of the pointed arch is now lost entirely, but as the style declines the form is still used for decorative purposes, regardless of its propriety or form.

On the exterior of this cathedral, as shown at (*c*), the effect of the change is even more apparent. Windows grouped under a depressed arch are protected by a similarly formed dripstone. Vertical mullions divide the window from sill to head, while traceried forms convert the tops of the individual openings into the lancet forms of traditional Gothic. The pinnacles used to weight the buttresses are elaborately carved in vertical panels and are crowned with pyramidal roofs and foliated decorations. The flying buttresses are low, and, with the aisle roof, are hidden behind the parapet of the outside aisle wall.

153. The four periods of the English Gothic style have been considered separately, but it must not be overlooked that these four periods form one continuous style and that the change from one period to the next was slow and transitional, usually covering a period of about 50 years. Moreover, the changes took place at different times in different parts of the country, as the general development, though progressive, was slower in some sections than in others.

154. Church at Iffley.—The little Norman Church at Iffley, Fig. 68, was erected sometime in the 12th century,

FIG. 68

Fig. 69

Fig. 70

and is one of the most interesting examples of the Norman style, not because of its importance architecturally or historically, but because it has been preserved with so few changes. This church is 103 feet long and 19 feet wide, inside measurements. There are three entrances, one on each side (north and south) and one in the west end. Each entrance is elaborately decorated and the design of each is different, the west one being the most ornate.

155. Canterbury Cathedral.—Canterbury Cathedral, Fig. 69, is a splendid structure, being 545 feet long and 170 feet wide with a nave 80 feet high. Nearly four centuries passed while this structure was being erected, and it thus presents nearly every period of the English Gothic style. It was commenced in the 12th century on the site of an older structure built during the Roman occupation, and the great bell tower at the crossing of the nave and transept was finished in the Perpendicular period, about the close of the 15th century.

156. Ely Cathedral.—Ely Cathedral, Fig. 70, is one of the longest cathedrals in Europe, its external length being 537 feet. Like Canterbury Cathedral, it presents examples of each period of English Gothic, as it was commenced in 1081, the eastern portion completed in 1106, and additions and alterations made up to the 16th century. The octagonal tower at the crossing is one of the most striking designs to be found in the style.

157. Wells Cathedral.—Wells Cathedral, Fig. 71, is one of the smallest, but at the same time, most beautiful, cathedrals of England. The front is beautifully ornamented and consists of niches that contain over three hundred sculptured figures, half of which are either life size or larger.

The interior of this structure, Fig. 72, is rich and impressive. The sun streaming through the colored glass of the east windows bathes the interior in a polychromic glory, with which the interlacing arches, the sharp-cut foliage carved on the capitals, and the lofty, ribbed vaulting blend most harmoniously.

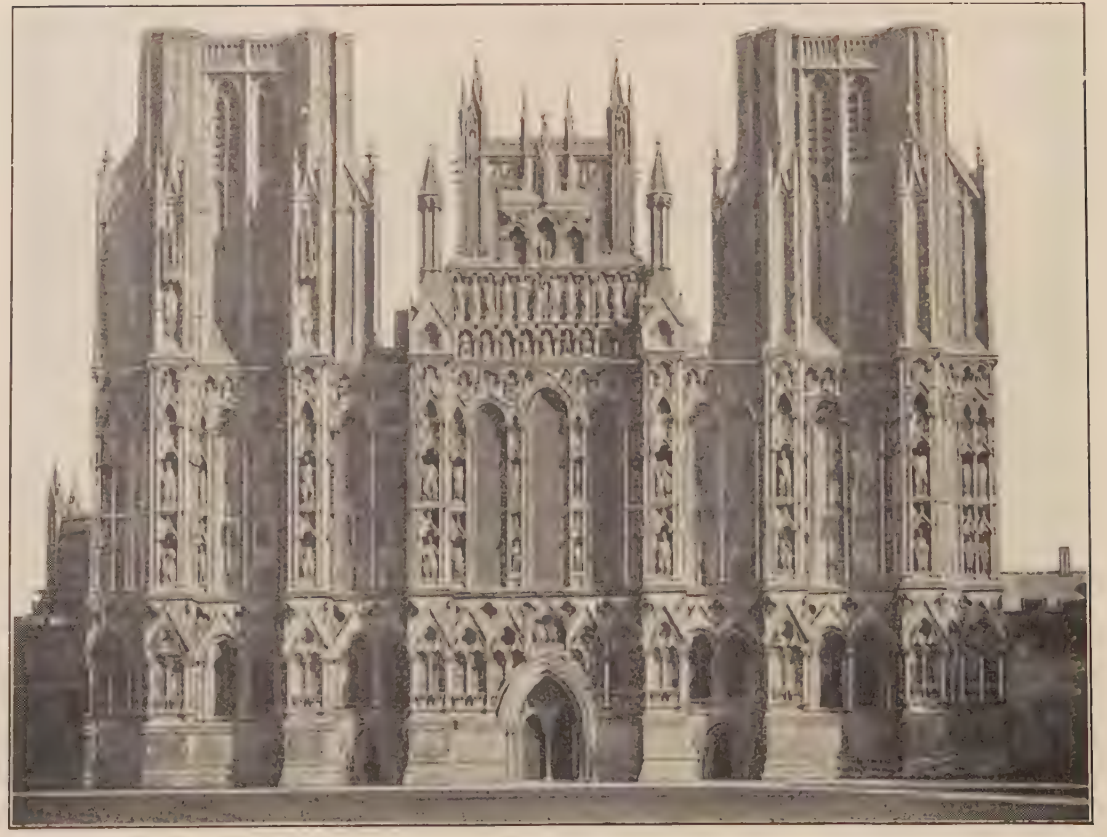


Fig. 71

263

FIG. 72

218—4

Fig. 73

158. Westminster Abbey.—Westminster Abbey, Figs. 73 and 74, was founded in the 11th century by the

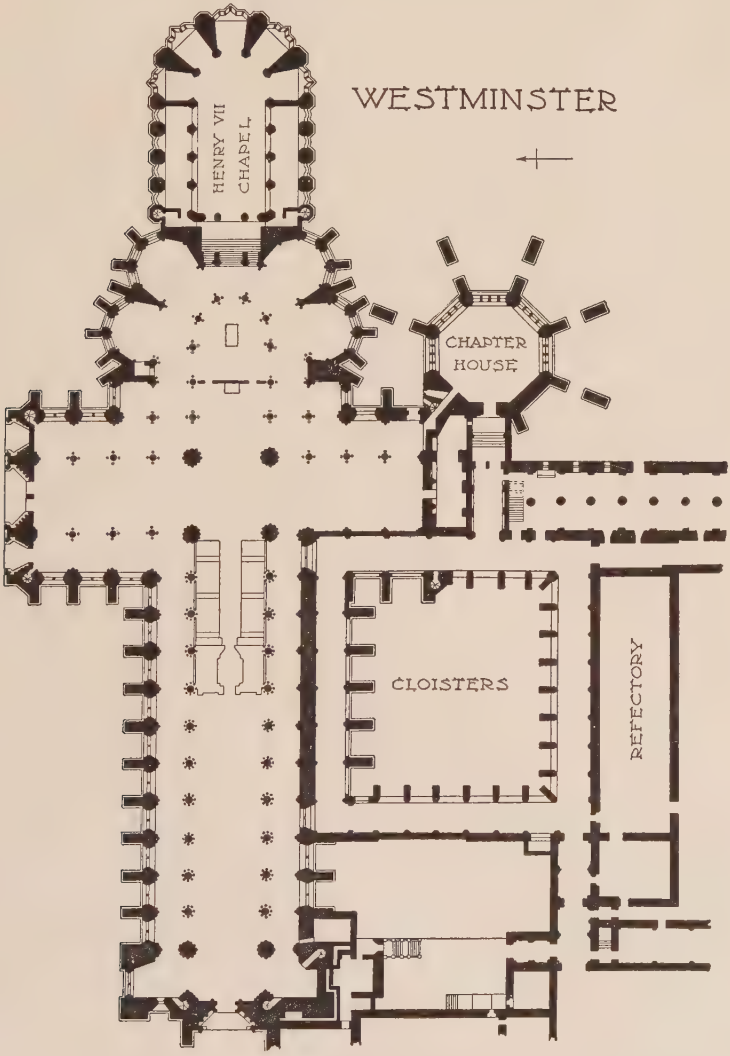


FIG. 74

Dominican monks, commonly known as the Black Friars, on account of their costume. Like other monasteries, it

consisted of a cloister court, from which opened the chapter house. The cloisters were vaulted passageways between different parts of the monastery, and the chapter house was a building, usually octagonal in England, set apart for the business meetings of the abbot and canons of the Church. On one side of the court extended the refectory, or great dining hall, while the dean's house and garden occupied another side. In addition to the details shown in Westminster plan, Fig. 74, the monasteries usually possessed an inner court with an infirmary for the sick and aged, a guest house, a kitchen, a servants' hall, a library, and a scriptorium, or room for the copying and illuminating of books. A court with a gateway for carts was usually surrounded by granaries, bakehouses, storerooms, stables, servants' quarters, etc., and mills, workshops, gardens, orchards, etc. were distributed as circumstances required. Monasteries took the place of inns during the medieval period, and even at the present day there are parts of Europe where they still fill this function.

ANALYTICAL STUDY

PLANS

159. During the Norman period, the cathedral and church plans usually consisted of a Latin cross with a tower at the intersection of the arms, an altar in the short arm, and a choir extending from the transept toward the east as in the Peterborough Cathedral, Fig. 75. The Early English plans varied only slightly from the Norman, but the introduction of the new vault had a tendency to alter the planning, as the compartments of the nave became oblong instead of square. Double transepts are introduced into some of the plans of this period, as in the Salisbury Cathedral, Fig. 75.

The plans of the Decorated period introduce wider spacings in the bays, except in cathedrals started during the earlier periods, as in the York Cathedral, Fig. 76. The

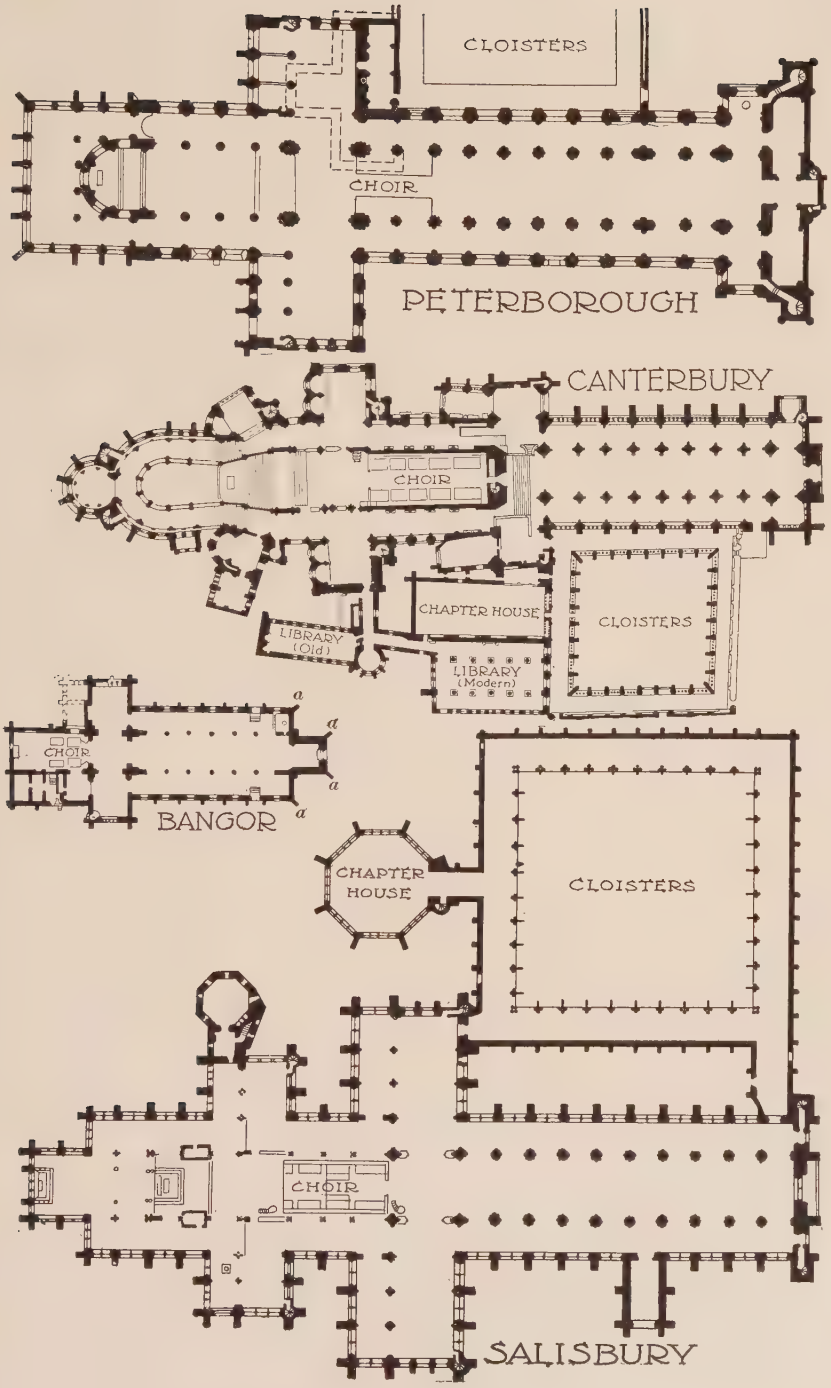

CLOISTERS
CHOIR
PETERBOROUGH
CANTERBURY
CHOIR
CHAPTER HOUSE
CLOISTERS
LIBRARY (Old)
LIBRARY (Modern)
CHOIR
BANGOR
CHAPTER HOUSE
CLOISTERS
CHOIR
SALISBURY

FIG. 75

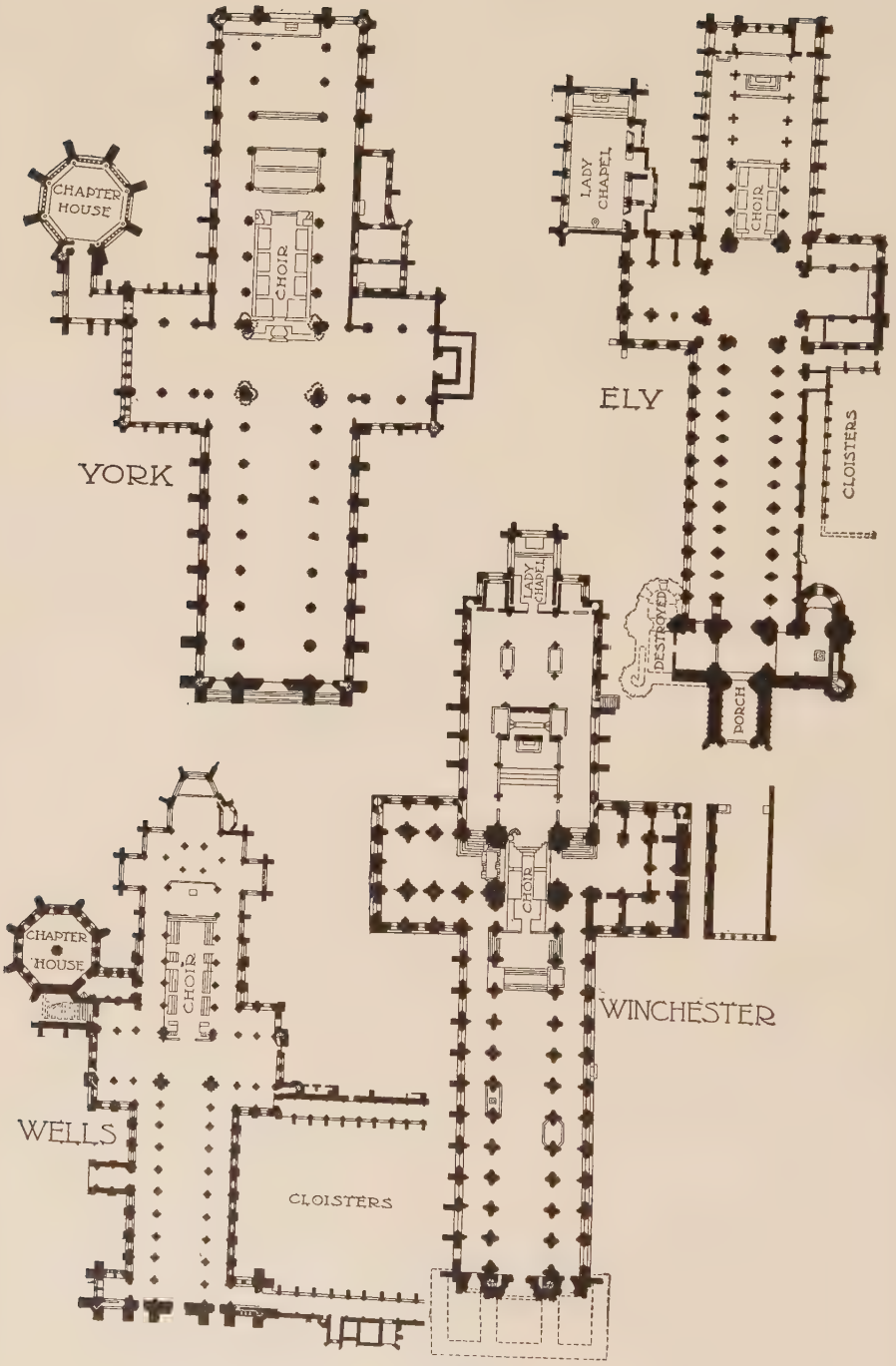

CHAPTER HOUSE
CHOIR
YORK
LADY CHAPEL
CHOIR
ELY
CLOISTERS
LADY CHAPEL
DESTROYED
PORCH
CHOIR
WINCHESTER
CHAPTER HOUSE
CHOIR
WELLS
CLOISTERS

FIG. 76

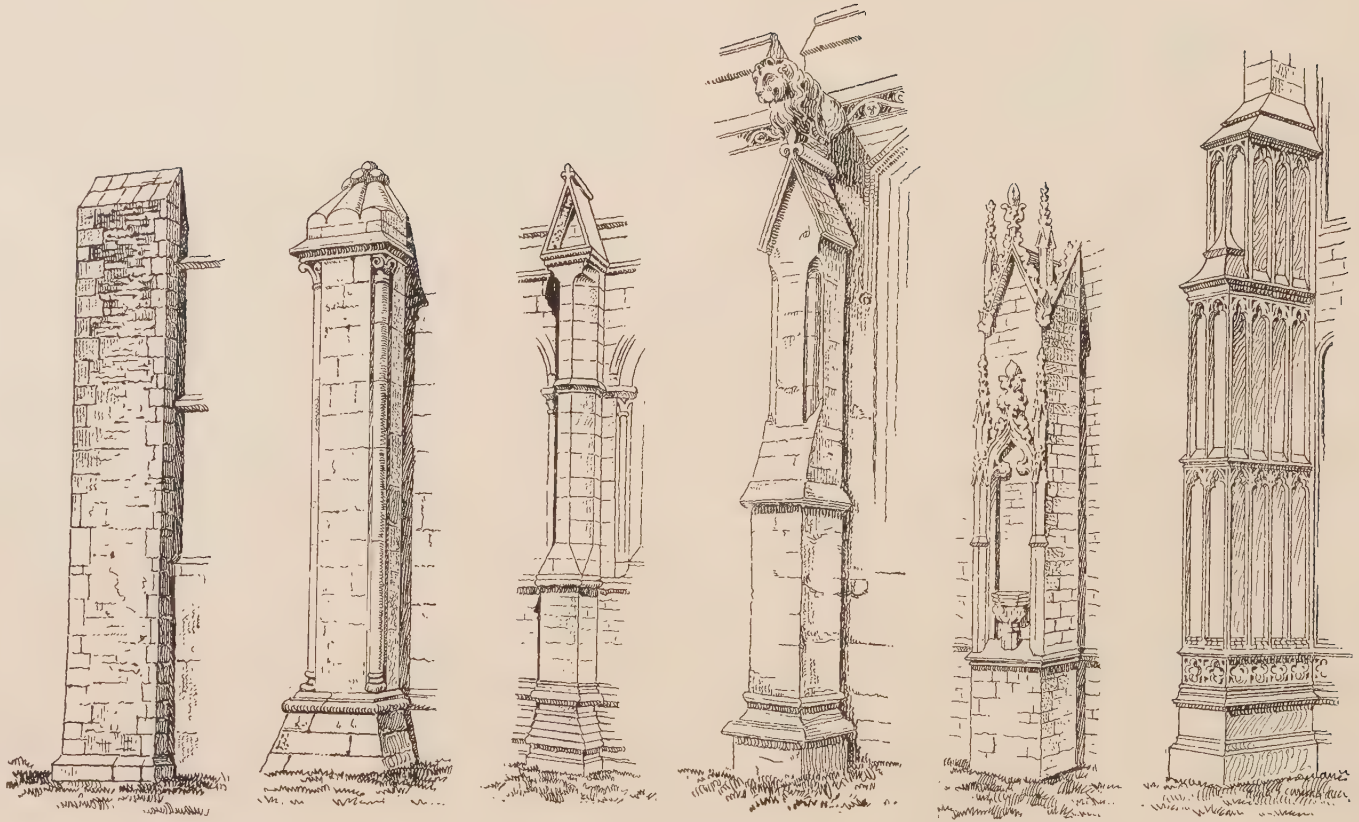
progress of vaulting influenced the setting out of the piers, and the vaults themselves became influenced by the introduction of stained glass in the windows, thereby demanding much larger windows. The central towers were carried higher and surmounted the spires, which were usually octagonal and carried exterior ribs on the angles. This was a period of parish churches and domestic architecture more than of cathedrals, as the latter had nearly all been started in the earlier periods.

During the Perpendicular period, the system of planning had not changed. The great building activity during the previous periods rendered numerous new structures unnecessary, and the ecclesiastical work consisted mostly of additions and repairs. The piers became somewhat smaller and the buttresses much deeper, as the latter were called on to carry more of the weights and pressures.

WALLS

160. During the Norman period, the walls were very thick, owing to the use of the semicircular arch, and the inside walls were usually divided about evenly between the arcade and the triforium and clearstory, as shown in the Peterborough Cathedral, Fig. 62. The buttresses were broad and flat, projecting little beyond the wall itself, and, frequently, they did not project beyond the corbel table at the bottom, see Fig. 77 (*a*). The stonework was inferior, the core being poorly bonded with the facing, and, consequently, in many instances failed.

During the Early English period, more cut stone was employed, and it was carried deeper in the rubble filling, although the walls retained the same massiveness as in the Norman style. The adoption of the pointed vault and consequent concentration of the weight of the roof vaults on the buttresses, gradually reduced the thickness of the enclosing walls between the supports, so that they became merely screens between the buttresses. The buttresses themselves were necessarily thicker, as they carried the entire weight of



(a) (b) (c) (d) (e) (f)

FIG. 77

the vault, frequently attaining a projection equal to their width. See Fig. 77 (*b*). In order to resist the horizontal thrust that was occasioned by the pointed-roof vault, the outer faces of the buttresses were gradually set back by slanting, weathered offsets, so that the buttresses were smaller at the top where less strength was needed. The corners were sometimes chamfered, Fig. 77 (*c*) and (*d*), and, occasionally, where the offsets occurred, a small gable was introduced. During this period the flying buttress appeared, but it was concealed under the aisle roof and did not form a prominent feature until later. The subdivision of the interior walls along the nave usually gave one half to the arcade, and the other half was evenly divided between the triforium and the clearstory. See Fig. 64.

161. In the Decorated period, the walls themselves received a decorative treatment in the form of paneling. The development of tracery in the windows and the increased size of the buttresses, with the paneling of the wall between them, were characteristic of this period. The buttresses themselves were offset, as in the previous period, and are frequently ornamented with niches, as in Fig. 77 (*e*), or occasionally with canopies and crockets. Buttresses at the angles of the buildings, projecting diagonally, were introduced in this period, as shown at *a* in the Bangor Cathedral, Fig. 75. The parapets were pierced with geometrical designs and flowing tracery, although the battlemented form was strongly adhered to.

With the Perpendicular period, the walls became profusely paneled, strongly resembling the tracery of the windows. The parapets were embattled as before and also paneled and frequently were richly designed. The buttresses were much deeper than in the previous period, sufficient, sometimes, to permit their being screened off and forming a separate chapel. The buttresses were elaborately paneled on their faces, as in Fig. 76 (*f*), and often they were mounted with finials or ornamented with crockets. Flying buttresses were more common and had much larger span.

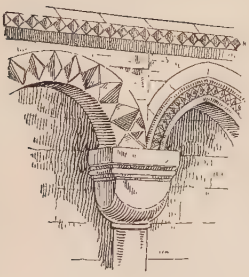
COLUMNS

162. An interesting development of the arcades under the nave walls of the cathedrals is shown in Fig. 78. The change of form from the round arch to the pointed arch, which has been previously discussed, resulted in a change from the heavy pier to the lighter pier, while the elaboration of carving from the simple tooth ornament to the foliated forms of the Gothic period was due to change of taste, increase of skill, and improvement of instruments used. The two arches shown in Fig. 78 (*a*) illustrate the change in carving. The arch on the left shows the Norman crude work which was cut with the stone ax, while that on the right shows the transition in style and elaboration in design, when the chisel supplanted the ax, at the close of the 12th century. The example here shown is taken from the Canterbury Cathedral, and is a striking example of advancement and style.

In Fig. 78 (*b*) is shown the characteristic Norman column with the pointed Norman arch and carved ornament, introducing nothing but the pure Norman moldings. In (*c*) is shown the heavy, round column carved to represent a cluster of columns, but the capitals are simply a group of the smaller details shown in (*b*), and the arched moldings are still Norman in character.

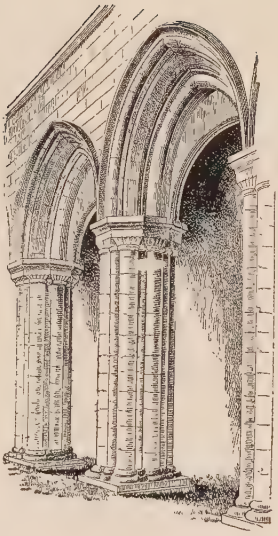
The Early English treatment is shown in (*d*). Here, the arches are pointed and the columns are clustered and capped with the characteristic stiff-leaf foliage. The moldings of the arches contain the dog-tooth ornament characteristic of this period, while the walls themselves retain that sturdy thickness and body inherited from the Norman style. In (*e*), the columns become lighter, the arches more pointed, the details more delicate, and the walls much thinner. The surfaces over the arches are richly diapered, and intermediate bands surround the columns, apparently tying the strands together.

In (*f*), approaching the Decorative period, the capitals are ornamented with elaborate leaf carvings, and the spandrels between the arches present elaborated canopies *a* with gables



(a)

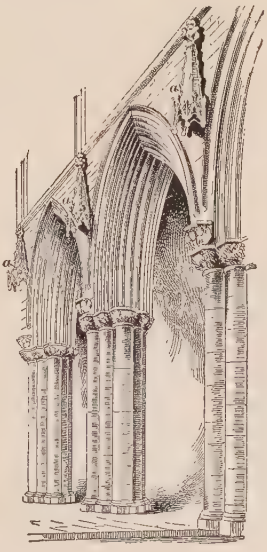
(b)



(c)

(d)

(e)



(f)

FIG. 78

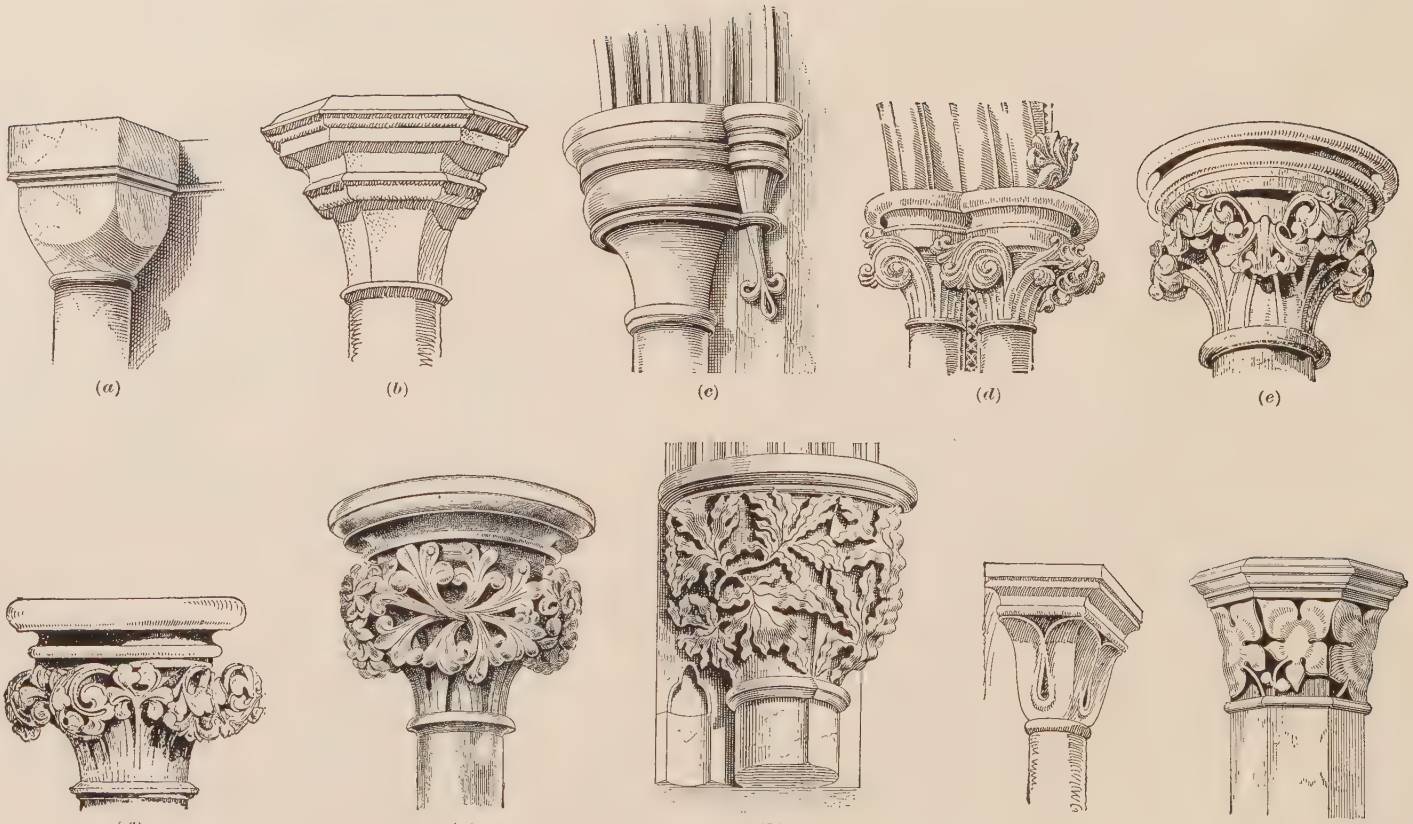


FIG. 75

and finials. There was no marked change in the treatment of the arches in the Perpendicular period, as few alterations were made at this time in the naves of cathedrals that demanded such changing.

163. The earliest column capital in the Norman period was simply a block with its lower corners rounded off to make the rounded side conform to the round column that supported it, as shown in Fig. 79 (*a*). Later, the square capital became carved, as in (*b*), and the supporting details were indented so as to represent leafwork. This change in form introduced the molded capital shown in (*c*), in which the hollow support was retained uncarved, while the abacus was turned in a series of circular moldings. The introduction of foliated work under the capital is shown in (*d*) and (*e*), which, with the example from the Lincoln Cathedral shown at (*f*), present excellent examples of the stiff-leaf foliage characteristic of this period. This is also presented in a similar form in (*g*), which is also from the Lincoln Cathedral. It will be noticed in each of these examples that the foliated form rises from the neck of the shaft, apparently growing out of the same, very much in the same manner as some of the papyrus and lotus-bud capitals. All of these foliated capitals have a bell shape, and the stems of the foliage are apparently retained with a necking at the bottom. In the Decorated period, however, this characteristic was lost, and the leaf ornament seems to be spreading over the surface without growing from it, as shown in (*h*). The bell capital was sometimes used in connection with the ball-flower ornament during this period, but the usual style was one rich in foliage carved meaninglessly on the surface. The leaves of this period are not conventional representations, as in the Early English period, but are portrayals of the characteristics of certain growths, such as the oak, the ivy, the maple, etc.

In the Perpendicular period, the capitals became plain again. They were frequently octagonal in plan, with simple moldings worked around the angles, as in (*i*), or later with the sides carved in some simple leaf form, as in (*j*).

OPENINGS

164. Windows.—One of the strongest characteristics of the English Gothic style, from the late Norman to the Perpendicular period, was the development of tracery. The Norman windows were rather long and narrow, sometimes divided by a shaft, and frequently ornamented with zigzag ornament, as at Iffley, Fig. 80 (*a*). As the style developed toward the Early English, the jambs were molded, and the upper part between the pointed windows was pierced either with a circular opening, as in Fig. 80 (*b*), or with an opening composed of a series of intersecting circles in the form of a trefoil or quatrefoil, as in (*c*).

This decoration of the window subdivision was called **tracery.** Where it consisted simply of piercing the walls with an opening, as at (*b*) and (*c*), it was called *plate tracery*, and where the decorative effect was obtained by carrying these mullions, or bars, to the top of the window head, where they split and intersected, as in (*d*), the system was called *bar tracery*. This bar tracery subsequently became foliated so as to present the introduction of a trefoil both at the heads of the windows themselves and at the openings over the windows, as in (*e*). This foliation indicates approach toward the Decorated period, and in (*f*) is shown a window where this effect has been carried out systematically.

165. During the Decorated period, however, the windows presented a less structural character. The bars did not rise evenly and naturally to the top of the window head and form patterns by their intersections, but finished abruptly, in some cases, in three or four long, narrow lights, over which geometrical constructions filled the window head, as in (*g*), or terminated in wheel forms, as in (*h*). Where the bars split, the subdivisions took a wavy form and a geometrical construction was introduced, as shown in (*i*). This was frequently applied in square openings, as in (*j*). Toward the end of this period the introduction of the ball-flower ornament, Fig. 84 (*q*), as a decorative detail on the moldings rendered

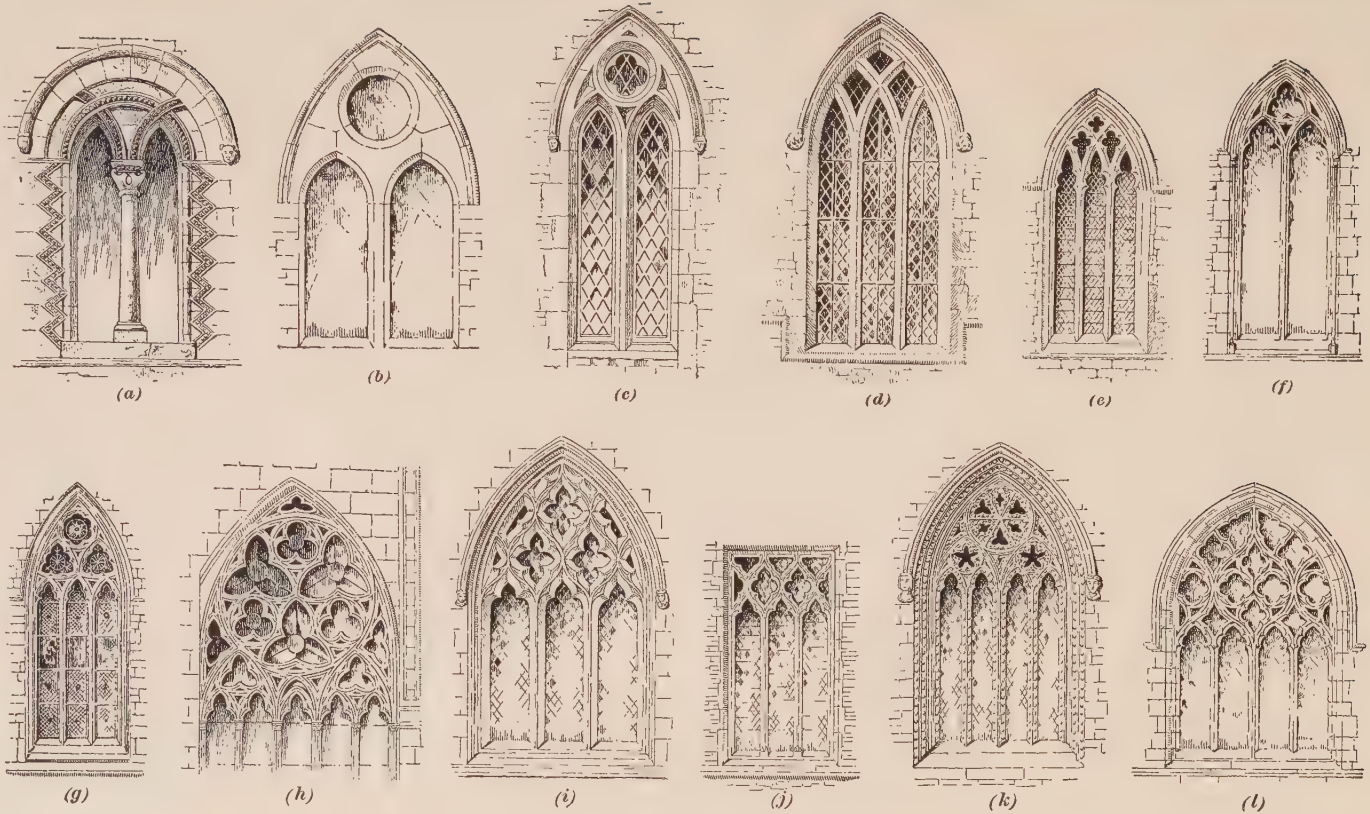


FIG. 80

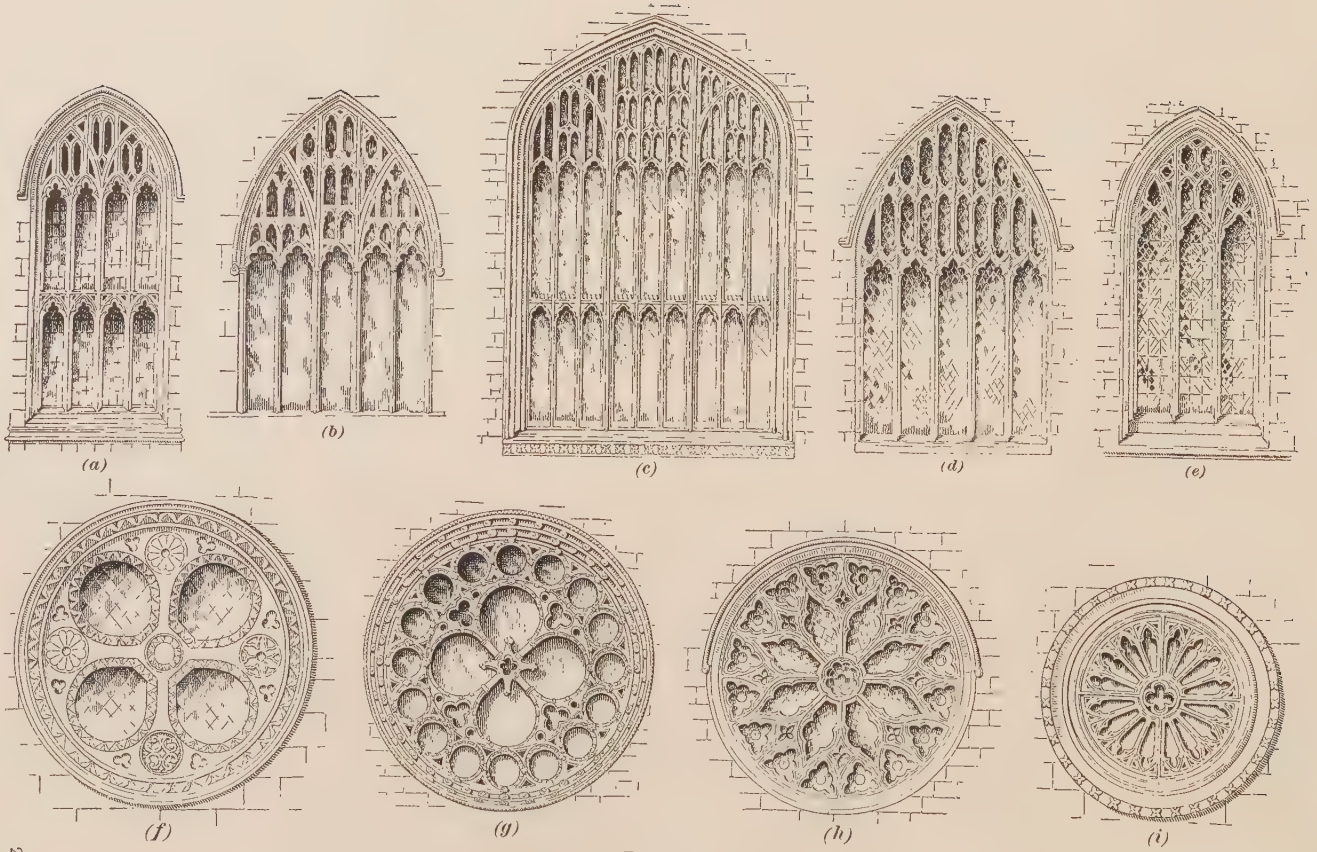


FIG. 81

some of the windows very elaborate, but at the same time detracted from their simple beauty, as in (*k*). The curvilinear tracery shown in (*i*) was frequently carried to greater extremes, as shown in (*l*), making the window appear broader and introducing an even number of panels in the lower half, subject to decorative effects in stained glass.

166. In the Perpendicular period, the tendency to divide the window into two portions—the upper half geometrical in construction, and the lower half narrow in the panels—

FIG. 82

became more emphasized by dividing the lower half into two series of panels, as shown in Fig. 81 (*a*), and carrying the details of the upper portion out in a similar series of panels interspersed with intersecting split bars. Occasionally, where there was an even number of panels, these bars split at the center and continued to the window head in a simple curve with vertical subdivisions between, as in (*a*), or, particularly where there was an odd number of panels, they were carried

straight to the window head, as in (*b*), and the side lights only framed under a curved rib.

The advancement in the system of vaulting, depressing the arches of vault surfaces, required that the window heads should be crowned by a flattened arch in order to correspond with the vault surfaces on the inside. Thus, in Fig. 81 (*c*) there is an extension of the principle shown in (*b*)—a wider window and a depressed vault. In (*d*) is shown a window where the tracery has degenerated into a series of vertical panels, and in (*e*), a window similar in design to that in (*b*), but with longer panels and more tracery in the head.

Fig. 82 shows one end of St. George's Chapel, Windsor Castle, in which the perpendicular treatment of the entire end of the building includes a series of panels of window tracery.

167. Circular windows were introduced at the ends of the naves in the late Norman and Early English periods. The window shown in Fig. 81 (*f*) is strongly characteristic of Norman, and shows the application of the tooth ornament. In (*g*) is shown a window from Lincoln Cathedral that was designed about the same period as that shown in (*f*), and, though still retaining Norman details, it indicates a leaning toward the Early English principles. The Decorated period, however, comes out strongly in its circular windows with foliated openings, as in (*h*). In some cases, there is a wheel construction as at (*i*). These circular windows are usually termed *rose windows*.

168. **Doorways.**—The Norman doorway was at first a simple arched opening with quoined stones on each side, as shown in Fig. 83 (*a*), but later it was recessed and elaborately ornamented on the jambs, as may be seen in Iffley Church, Fig. 68, and in Fig. 83 (*b*). The simpler form of doorway in the Early English period is shown in (*c*). This doorway is simply a square head with shoulders, but with the development of the period appears the pointed arch characteristic of the style, the recessed jambs with moldings and columns, and the decorative treatment shown in (*d*).

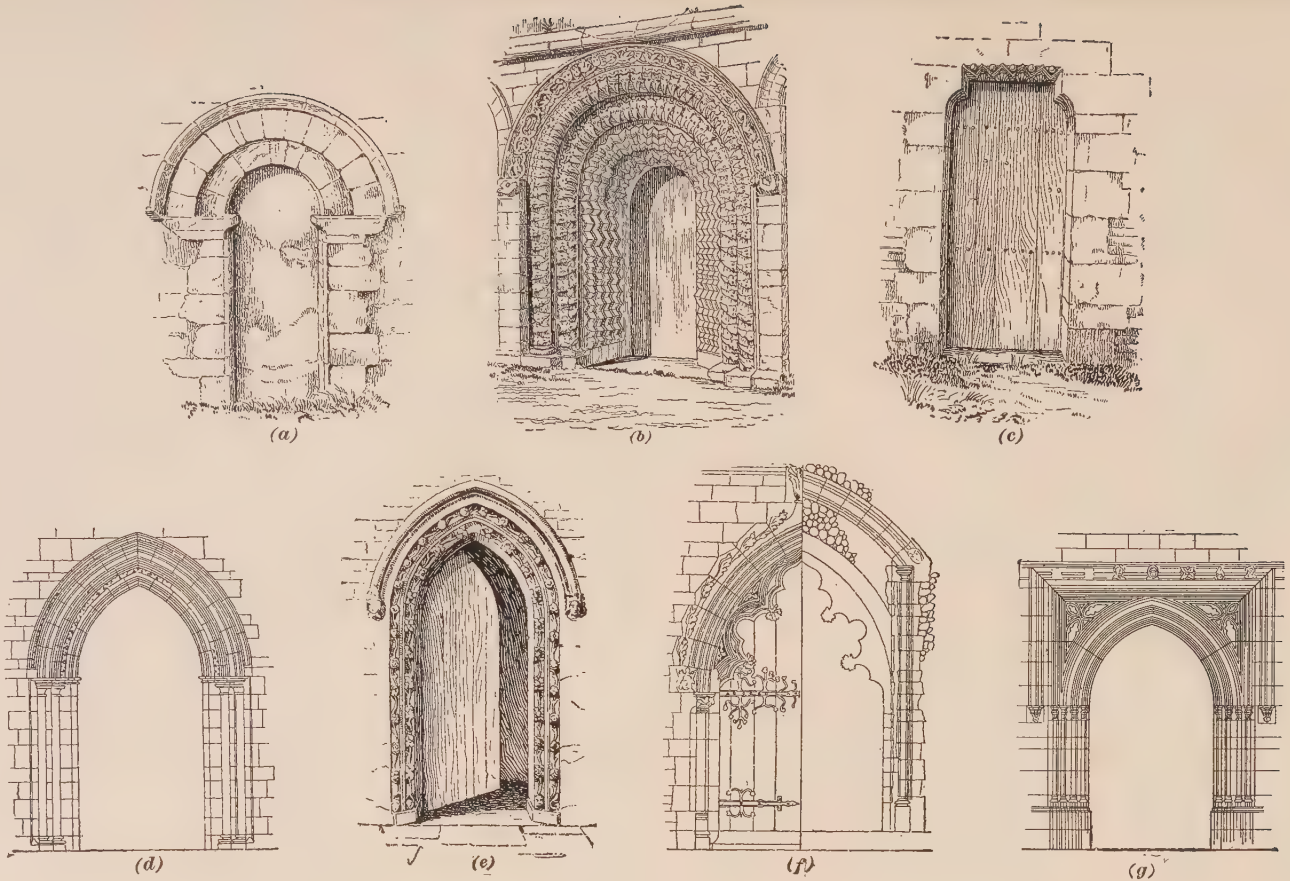


FIG. 83

During the Decorated period, simpler doors presented fewer moldings, but had elaborate decorative effects on the moldings, as shown in (*e*). The dripstone over the door head frequently rested on two carved heads, usually those of the king and the bishop or of two prominent ecclesiastical officers. The tops of the openings during this period were sometimes foliated as in (*f*), the capitals of the columns and the jambs were carved with leaf ornaments, and occasionally a series of crockets was worked over the dripstone.

Perpendicular doorways were frequently square openings within which a pointed arch was struck. Over all a square lintel and a drip were executed, and the spandrels were filled with tracery, as in (*g*). The jambs were decorated with a series of columns, and the general contour formed a simple splay.

MOLDINGS

169. In the earliest Norman construction, the moldings simply consisted of a series of projected courses of stone, as shown in Fig. 84 (*a*). The corners of alternating courses were sometimes chamfered off and a roll carved on the course between, but with the introduction of the pointed arch it became the pointed roll, or *boltel*, as in (*b*).

The Early English moldings consisted of bold, round boltels with deep-cut hollows, producing strong effects of light and shade. They were carved on the same projecting courses as in the Norman, as shown in Fig. 84 (*c*), but presented a greater variety in appearance.

In the Decorative period, the moldings, as shown in (*d*), were not cut so deeply, though they were based on the same details as in the preceding style. In the Perpendicular period, instead of being cut on the projected courses of the masonry work, the surfaces on which they were cut seem to have been reduced simply to plain surfaces, and the lines of the moldings sunk beneath it, as shown in (*e*). The decorative characteristics of the moldings from the Norman period are shown in Fig. 84 from (*f*) to (*s*).

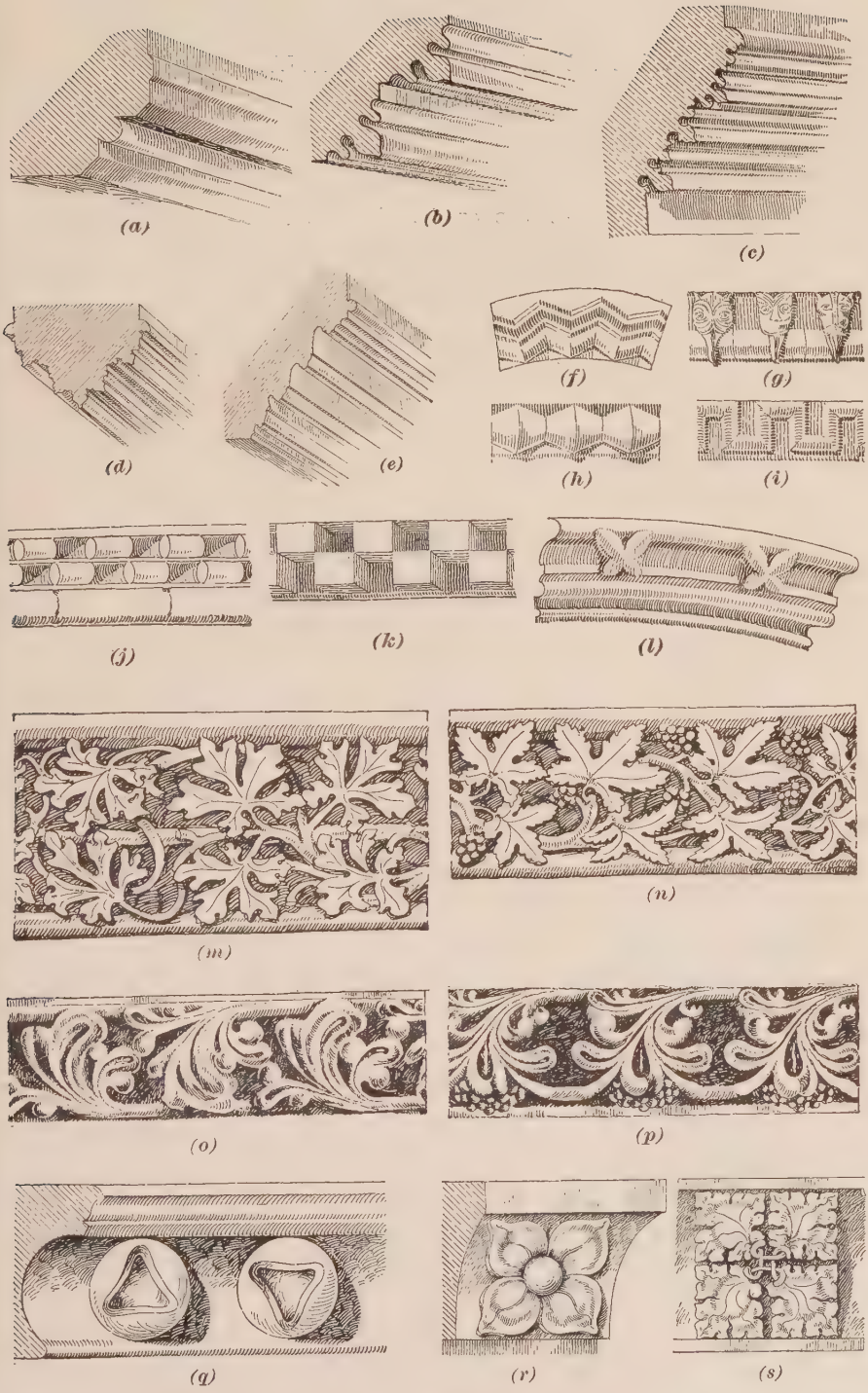


FIG. 84

ORNAMENT

170. The points of gables were frequently ornamented with some form of the cross. In the Norman period, a simple, equal-armed cross usually completed the roof ends. This cross took the form shown in Fig. 85 (*a*) during the Early English period, and was elaborated to the form shown in (*b*) in the Decorated period. The Perpendicular period presented further elaborations, as shown in (*c*).

Finials instead of crosses were sometimes introduced over gables and at the top of buttresses or other lofty points. The form shown at (*d*) is from the Early English period; that at (*e*), from the Decorated period; and that at (*f*), from the Perpendicular period. These are not the only forms that were used to present the general characteristics that prevailed. A simple, stiff-leaf decoration is characteristic of the Early English period, while a profusion of elaboration is characteristic of the Decorated period. A thoroughly stiff and conventional rendering of the Perpendicular period came with the introduction of the double-ogee, or Tudor, arch.

171. Where the groined ribs intersected under the vaults, or where they rested against the side-wall buttresses without a column, it was customary to decorate the point with a bunch of ornamentation usually termed a *boss*. In the example shown in Fig. 85 (*g*), the characteristic details of the Early English foliage can be recognized, whereas the direct imitation of the ivy leaf in the example shown in (*h*) suggests the late Decorative period, and the form shown in (*j*) may be found in the late examples of the Perpendicular period.

Along the gables, as has already been pointed out, crockets were frequently carved. These usually took the form shown at (*j*) in the Early English period, at (*k*) in the Decorative period, and at (*l*) in the Perpendicular period.

172. The battlements which surmounted the walls in the Early English period were simple, square indentations, as shown in Fig. 86 (*a*) and (*b*), but during the Decorative

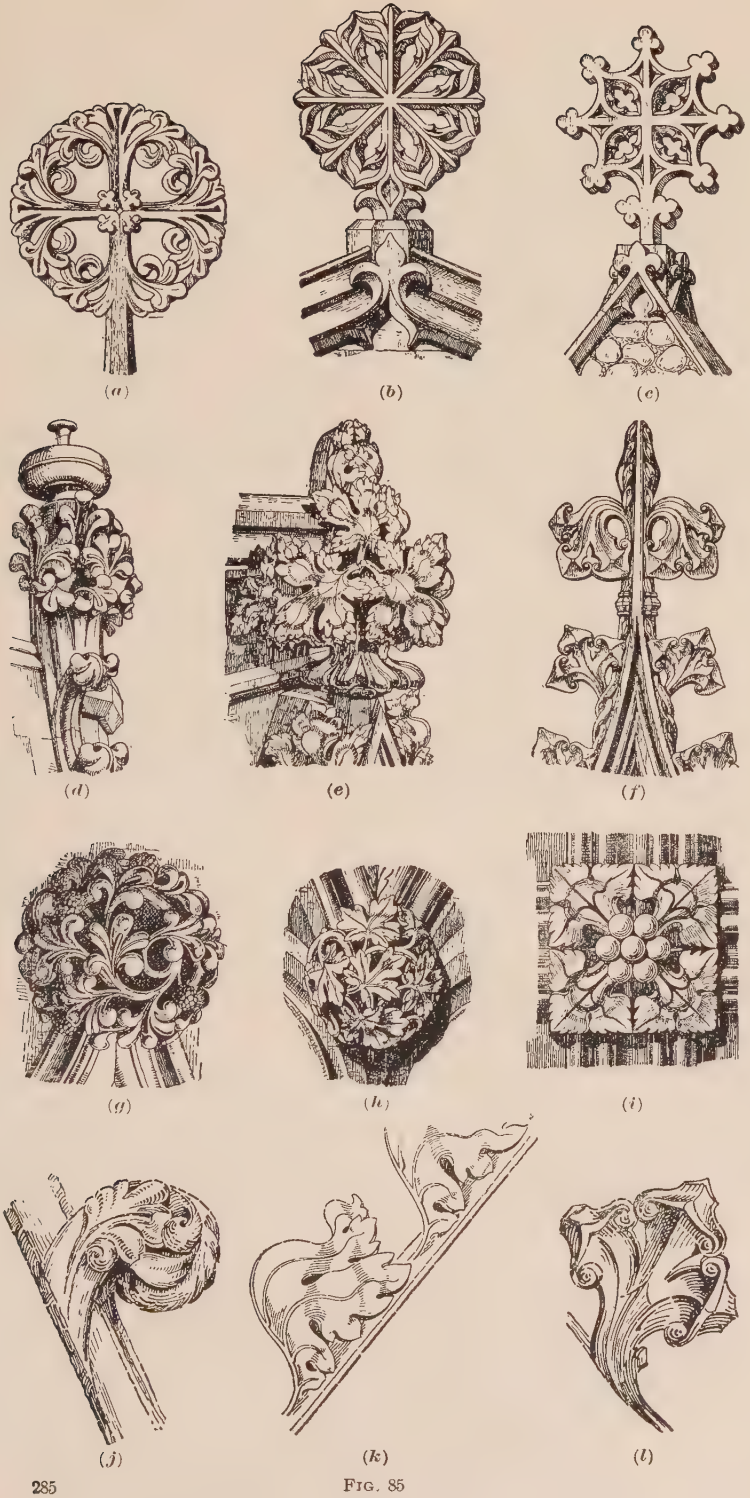


FIG. 85

period they were pierced with wavy details subdivided into panels with molded tops and carved heads beneath, as shown in (*c*). The molded top and projecting string-course for a base was retained in the Perpendicular period, but the panels of the battlements became pierced with trefoil or quatrefoil ornament, as shown in (*d*). Along the ridges of the roof,

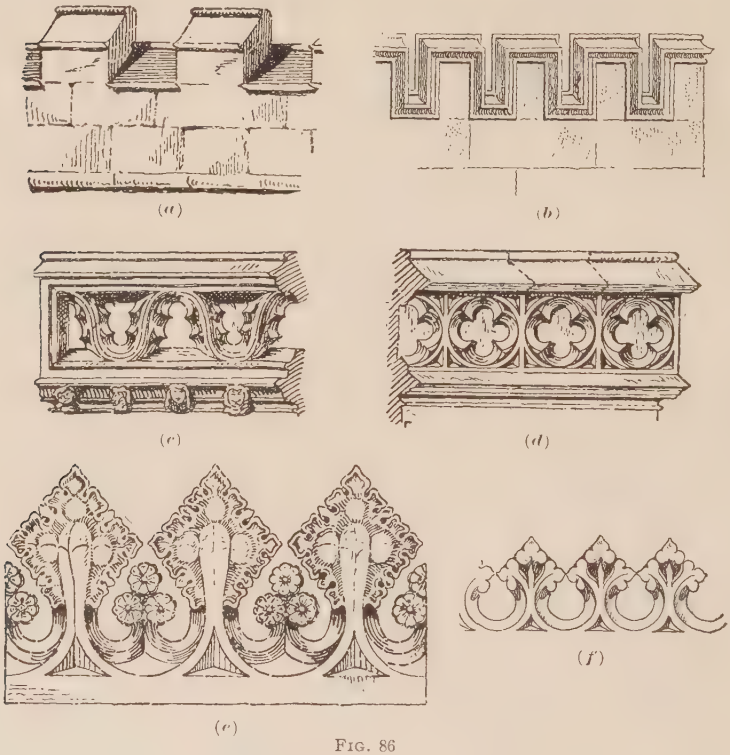


FIG. 86

crestings were introduced, particularly late in the style. These crestings were elaborately decorated and presented a foliated ornament frequently having carved flowers between, as shown in (*e*). A simpler form of cresting in which the floral decoration is omitted is shown at (*f*).

173. Wall surfaces were subdivided and decorated with various forms of diaper ornament, as shown in Fig. 87 (*a*) to

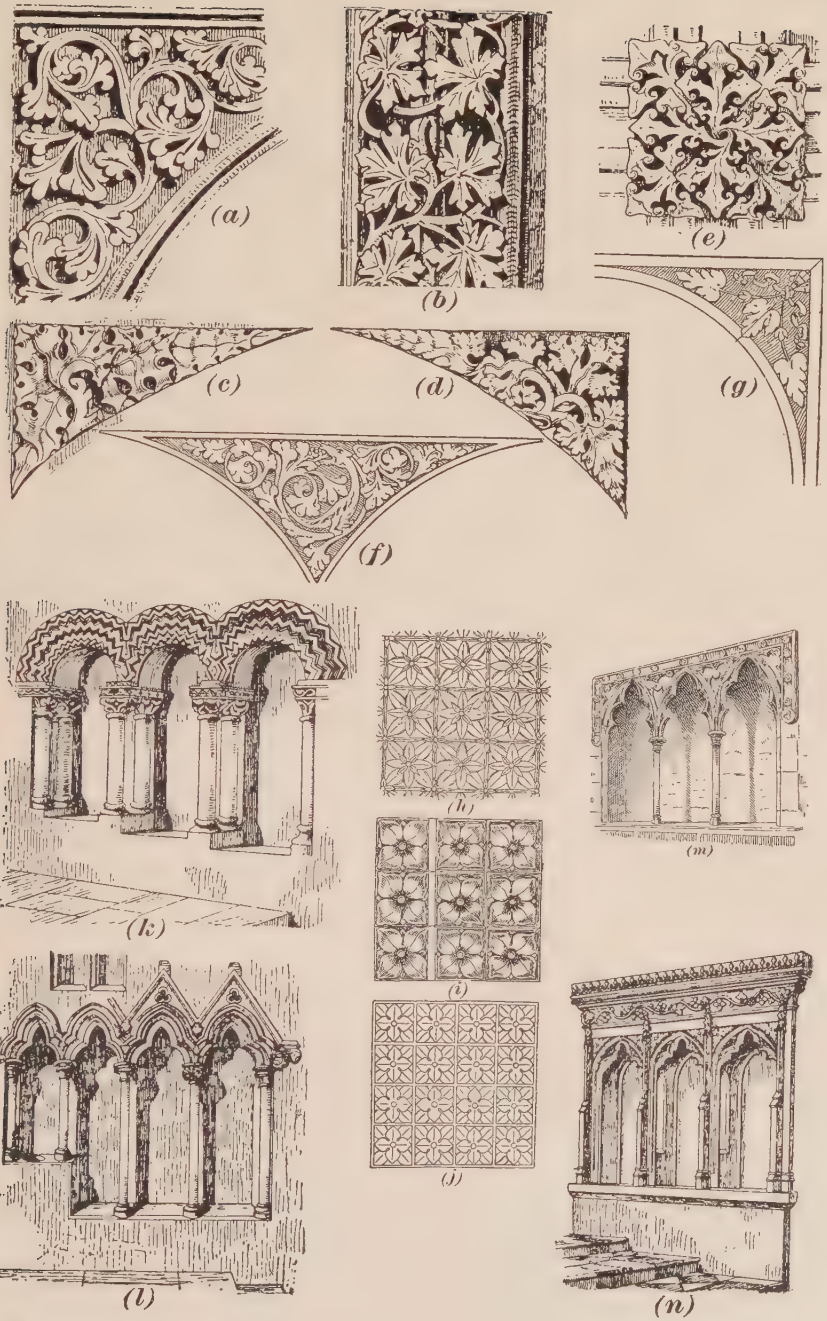


FIG. 87

(*j*), and running ornament of carved forms was used to subdivide the panels. The characteristics varied with each style, but the foliated forms used were the same as those applied to other details in each individual period. *Sedilia*, or side seats, were characterized in each period. The forms of grouping and decorations shown in Fig. 87 (*k*), (*l*), (*m*), and (*n*) are characteristic of the several periods.

174. The wall diapers were usually very simple, but were brilliant in red, blue, green, and gold (see Fig. 88). The details seem to have been stenciled, or partly stenciled, and partly worked up freehand.

Simple bands of characteristic running ornament, in which conventional bird forms were introduced, as shown in Fig. 89 (*a*), are found in Westminster Abbey, as is also a treatment of circles and heraldic shields, as in (*b*). At Salisbury, a combined circle and checker pattern, as in (*c*), is used with animal forms introduced in the circles. Elaborate color schemes were sometimes used on the moldings and as a background to the foliage of the capitals.

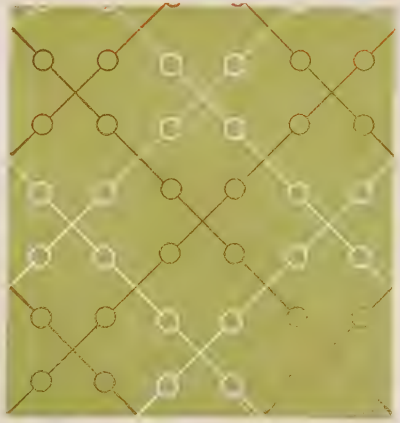
(a)

(b)

(c)

(d)

(e)



(f)

(*a*)

(*b*)

(*c*)

(*d*)

(*e*)

(*f*)

FIG. 89

REVIEW EXERCISES

1. During what period was Gothic architecture dominant throughout Western Europe?

2. (*a*) Why is English Gothic freer from foreign influences than that of other parts of Europe? (*b*) Into what periods can English Gothic be divided? (*c*) In what details do the characteristic principles of each period lie?

3. Describe the characteristics of (*a*) Norman vaulting, (*b*) Early English vaulting, (*c*) Decorated vaulting, (*d*) Perpendicular vaulting.

4. Make a sketch of the cross-section of a church showing the structural details and general arrangement characteristic of the (*a*) Norman period, (*b*) Early English period, (*c*) Decorated period, (*d*) Perpendicular period.

5. Describe the characteristics of the buttresses of the four periods of English Gothic architecture.

6. Describe the characteristics of the piers and columns of the four periods of English Gothic architecture.

7. Make drawings in elevation of Gothic capitals illustrating the characteristics of each of the four periods of English Gothic architecture.

8. Make four drawings of Gothic window openings showing the characteristics of the four English periods, with a short description of each.

9. State briefly the characteristics of the four periods of English Gothic doorways, illustrating the details of each.

10. With a description and drawing, illustrate the characteristics of English Gothic moldings from the Norman to the Perpendicular period.

11. Give a general description of the characteristics of English Gothic ornament, illustrating with drawings of examples covering the four periods.

12. Make four sketches of Gothic wall decoration, two to be in color, and two in wash work.

NOTE:—All drawings to be neatly drawn on sheets 9 inches by 12 inches with a $\frac{1}{2}$-inch border, and to be of sufficient size to show details clearly. Two or more drawings may be placed on one sheet if desired, but should not be crowded.

HISTORY OF ARCHITECTURE AND ORNAMENT

(PART 3)

FRENCH GOTHIC

(987 A. D. to 1461 A. D.)

INFLUENCES

1. Geographical, Geological, and Climatic.—France (see map, Fig. 35, *History of Architecture and Ornament*, Part 2), may be divided by the river Loire into two sections. The northern section was inhabited by the Franks, while the southern one was occupied by some of the Roman race. This fact, together with the geological and climatic influences, has already been considered in *History of Architecture and Ornament*, Part 2, page 201.

2. Religious.—The crusades represented by Louis IX of France (1248 to 1254) gave rise to great religious zeal in this country and consequently to the erection of many important ecclesiastical structures. The clergy rose to great power and influence owing to its unswerving justice and adhesion to royal interests. Abbé Sugar, prime minister of Louis VII (1137 to 1180), exercised great influence in church building, and while the pope at Rome was the controlling spirit of the entire ecclesiastical establishment, the local liberties of the French Church were recognized. Various

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cults and sects arose and gave fame to certain shrines and chapels, to which pilgrimages were made from all parts of the country, bringing wealth and prominence to these edifices and thus enabling them to express their affluence in rich architectural treatment. Cities erected their cathedrals with an enthusiasm that became a characteristic of the nation, and in consequence we find that in France the most important religious structures were erected in its most prominent commercial cities.

3. Political and Historical.—The beginning of modern France was in 987 A. D., when Hugh Capet became king of the feudal monarchy. During this period the fiefs were occupied by nobles of widely different races. These nobles were almost constantly at war, and the development from the Romanesque style to the Gothic style varies in different parts of the country in accordance with the local political environments and the differences of language and customs. Moreover, in the south of France, there were, and are up to the present time, remains of many Roman structures, which naturally influenced the new structures (see Fig. 75, *History of Architecture and Ornament*, Part 1).

Between 1180 and 1223, Philip the Great, a descendant of Hugh Capet, united the French provinces into a homogeneous nation by destroying the feudal power of the barons. King John of England, after entering into an agreement with Philip, betrayed him, and in order to obtain revenge Philip declared that John had forfeited all the fiefs he held under the French crown and proceeded to conquer Normandy and all other English possessions on the Continent except Aquitaine (which had become an English province when Henry II of England married Eleanor of Aquitaine, the divorced wife of Philip's father). Philip then defeated the combined forces of the English, Germans, and Flemish in the battle of Bouvines, 1214 A. D. The power of France thus became so strong that the English barons offered the English crown to Philip's eldest son, who, as Louis VIII, was afterwards king of France.

CHARACTERISTICS

4. Though Gothic architecture in France was the same in principle as in all other parts of Europe, the vertical, or aspiring, tendency was accentuated by a greater height of the nave than in England and by high-pitched roofs with numerous spires and crockets, pinnacles, flying buttresses, etc., and the windows were tall and rich in tracery. The style is not so pure as the English Gothic, but this can be accounted for by the fact that France is not isolated from the Continent as is England, and the architecture therefore did not have the same opportunity to develop independently. Nevertheless, French Gothic architecture presents the same general development as does the English style during its four periods, but the French periods are known under different names, owing to the differences in local influence. The periods into which French Gothic architecture is divided are, the Early French, or 13th Century; the Rayonnant, or 14th Century (from a term meaning radiating, on account of the characteristic rose windows); and the Flamboyant, or 15th Century, from the flamelike form that the traceries assumed during this period. All the great structures were erected in the first half of the 13th century, and of these about 150 were cathedrals for which the funds were provided by the people at large and not by the monastic establishments. This system being entirely different from that practiced in England, a great variety of plans and arrangements is found in different parts of France contrasting with the uniformity of plan in the English system.

5. The first requirement of all cathedral buildings was to have the structure large enough to accommodate the mass of people that assembled regularly for worship. Thus, the first element that contributes to impressiveness in all cathedrals is the *size*—the *vastness*. Size may be produced in three ways: by length, by breadth, or by height. To construct a long building is a comparatively easy matter. One section after another may be added without limit so long as

the material holds out. The erection of a wide building, however, is quite a different matter. The roofing of a structure 100 feet wide is a far more serious problem than the roofing of one only 20 feet wide, and in the erection of the medieval cathedrals, there came a limiting point where it was not possible to make buildings any wider. Then came the question of height. To construct a stone roof on walls 20 feet high is far simpler than to build one on walls 100 feet high, as the walls, besides carrying their own weight, must be sufficiently strong to withstand the vault thrusts. For instance, a pile of single bricks four courses high, will stand by itself with little danger of collapse, but continue the courses up to twenty bricks in height, and the slightest touch will throw them down. In order to carry weight, a wall must have a thickness in proportion to its height, or else it must be strengthened at the point where the outward pressure is greatest. The first of these methods is Roman and Early Romanesque, and the second is late Romanesque and Gothic.

A wall may be strengthened by means of a short wall built either at right angles to it or against it; or the wall that is to serve as a brace may be built some distance away and have an arch, or *prop*, extending to some point in the main wall that is to be supported. The first method produces the *buttress*, while the second introduces the *flying buttress*. (See Art. **50,** *History of Architecture and Ornament*, Part 2.)

6. The proportions of length, breadth, and height vary in different periods and in different countries. The Romanesque churches along the Rhine were characterized by their great length, and some of the English Gothic churches are also long, but the development of height as a national characteristic of their cathedrals is found only in France. These high walls demand a corresponding development of buttress and flying buttress. Consequently, the French Gothic style is further characterized by an elaborate flying-buttress treatment that appears as a detail on the exterior, in contrast with the English style, in which the buttresses were

5 FIG. 1

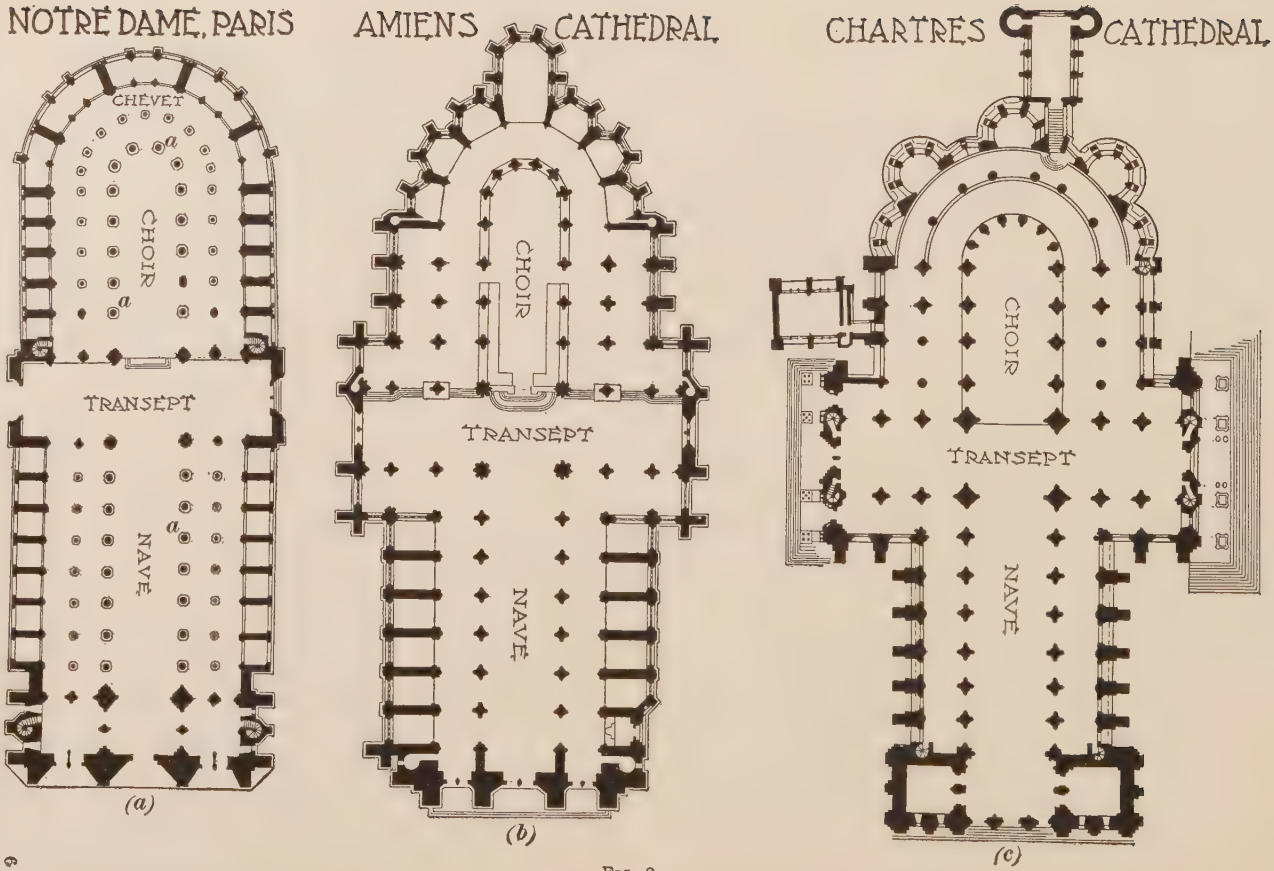

NOTRE DAME, PARIS
CHEVET
a
a
CHOIR
a
TRANSEPT
NAVE
(a)
AMIENS CATHEDRAL
CHOIR
TRANSEPT
NAVE
(b)
CHARTRES CATHEDRAL
CHOIR
TRANSEPT
NAVE
(c)

FIG. 2

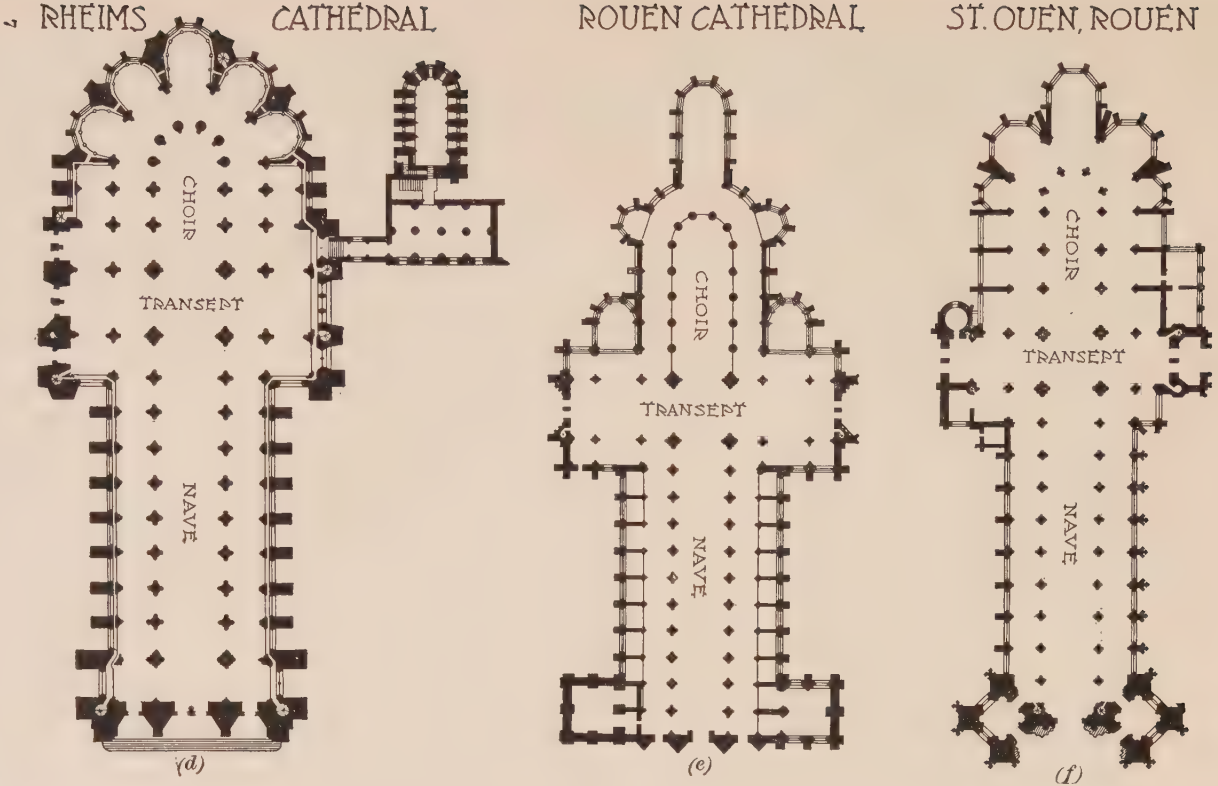

RHEIMS CATHEDRAL
CHOIR
TRANSEPT
NAVE
(d)
ROUEN CATHEDRAL
CHOIR
TRANSEPT
NAVE
(e)
ST. OUEN, ROUEN
CHOIR
TRANSEPT
NAVE
(f)

FIG. 2

frequently concealed under the roof slopes of the aisles. (See Fig. 64, *History of Architecture and Ornament*, Part 2.)

By this system, the nave walls were carried on a series of small columns, and the thrusts of the roof vault were taken up by a series of flying buttresses. The building thus consisted of a vault and upper nave walls carried on a series of columns and props (Fig. 3), and the enclosing walls along the aisles became mere screens between the structural details. As a result of this ingenious system of building, the screen walls could be pierced by vast windows, which, with their flood of colored light through the painted glass, added greatly to the impressiveness of the interior.

EXAMPLES

7. Notre Dame Cathedral.—Notre Dame at Paris, Fig. 1 (erected 1163 to 1214), is one of the oldest French cathedrals and presents a plan, Fig. 2 (*a*), typical of the French Gothic style, although the structure has been subjected to many alterations and additions. It has a wide central nave with double aisles and small transepts that do not project beyond the sides, as in the English examples.

The view down the nave, Fig. 3, is most impressive. The massive piers supporting the nave walls are crowned with Corinthian capitals, showing the influence of the geographical position of France. From each of these capitals springs a cluster of three attached columns, which spread into the ribs of the vault above. This treatment adds to the lofty appearance of the nave, but was improved on in later examples by having the attached columns spring from the ground line and extend as an unbroken rib to the crown of the vault, as at Amiens, Fig. 12, while other attached columns support the aisle arches and vaults.

It should be borne in mind that, as broad as this plan, Fig. 2 (*a*), appears, the nave only is carried up to the full height and roofed, as shown in Figs. 4 and 5 (*a*), and that the dead-weight of this nave wall and the crowning vault 110 feet above the pavement is carried on the nave columns *a*,

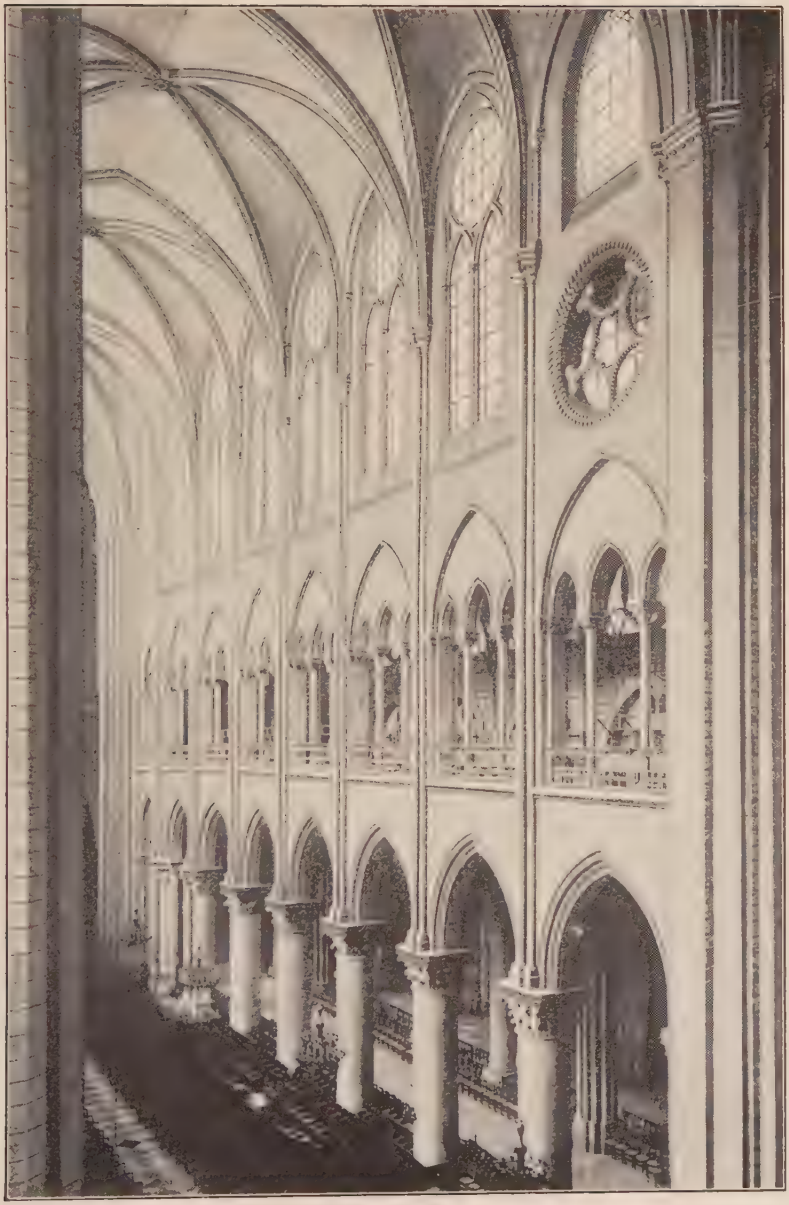
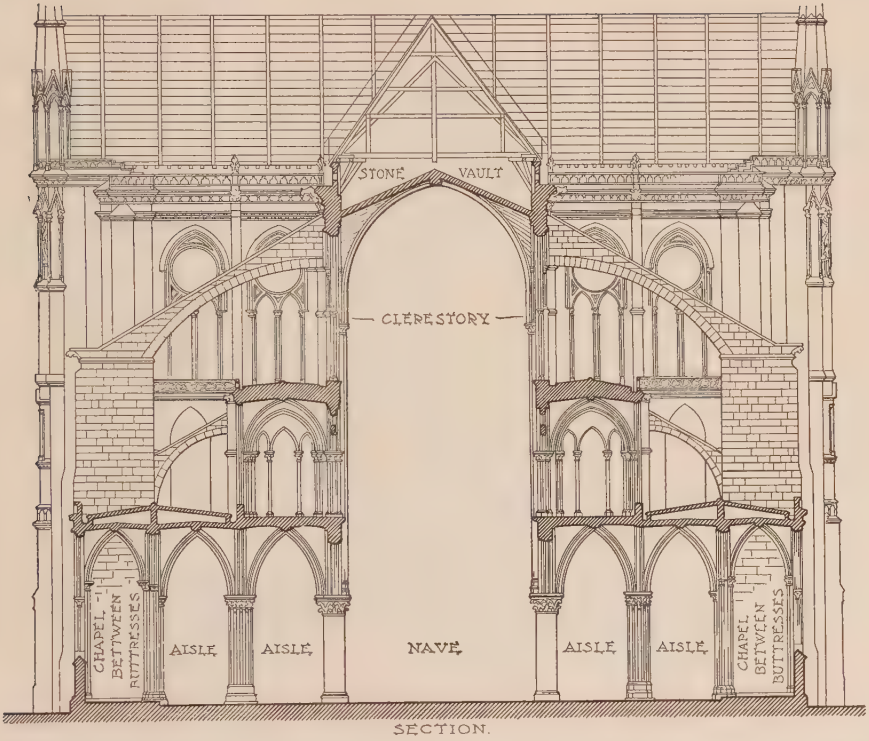


Fig. 3

FIG. 4

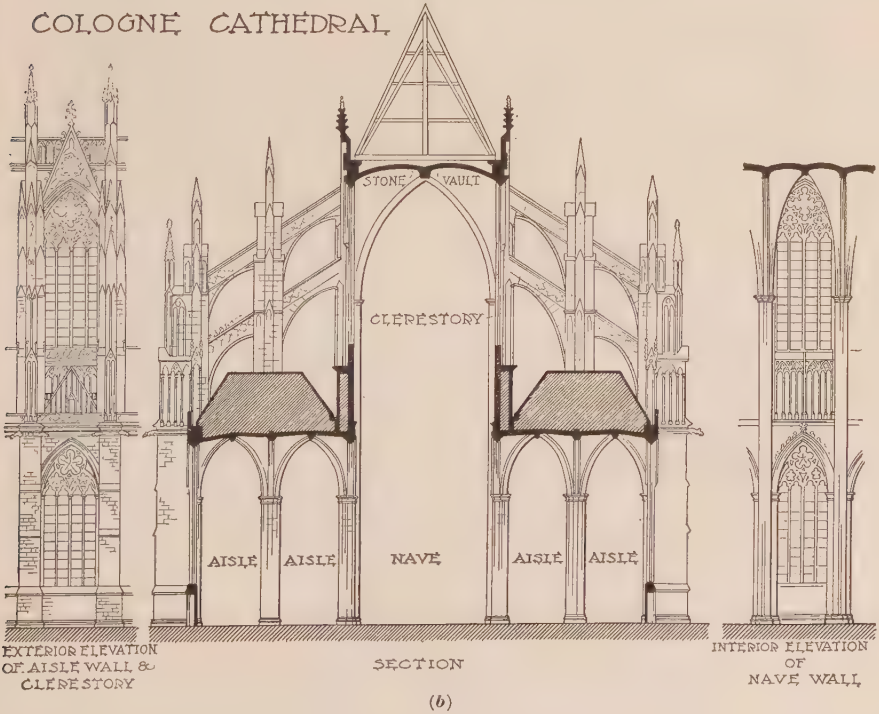
NOTRE DAME CATHEDRAL.



SECTION.

(*a*)

COLOGNE CATHEDRAL.



EXTERIOR ELEVATION OF AISLE WALL & CLERESTORY

SECTION

INTERIOR ELEVATION OF NAVE WALL

(*b*)

FIG. 5

Fig. 2 (*a*), while the tremendous outward thrust is taken up by flying buttresses to the fixed buttresses. The weight of these flying buttresses in themselves is an important factor in retaining the thrust of the roof vaults against the bases on which they lean. It should therefore always be remembered that a flying buttress is a *prop*. Notre Dame presents the first Gothic vault of monumental proportions and the first practical demonstration of the possibilities of Gothic construction.

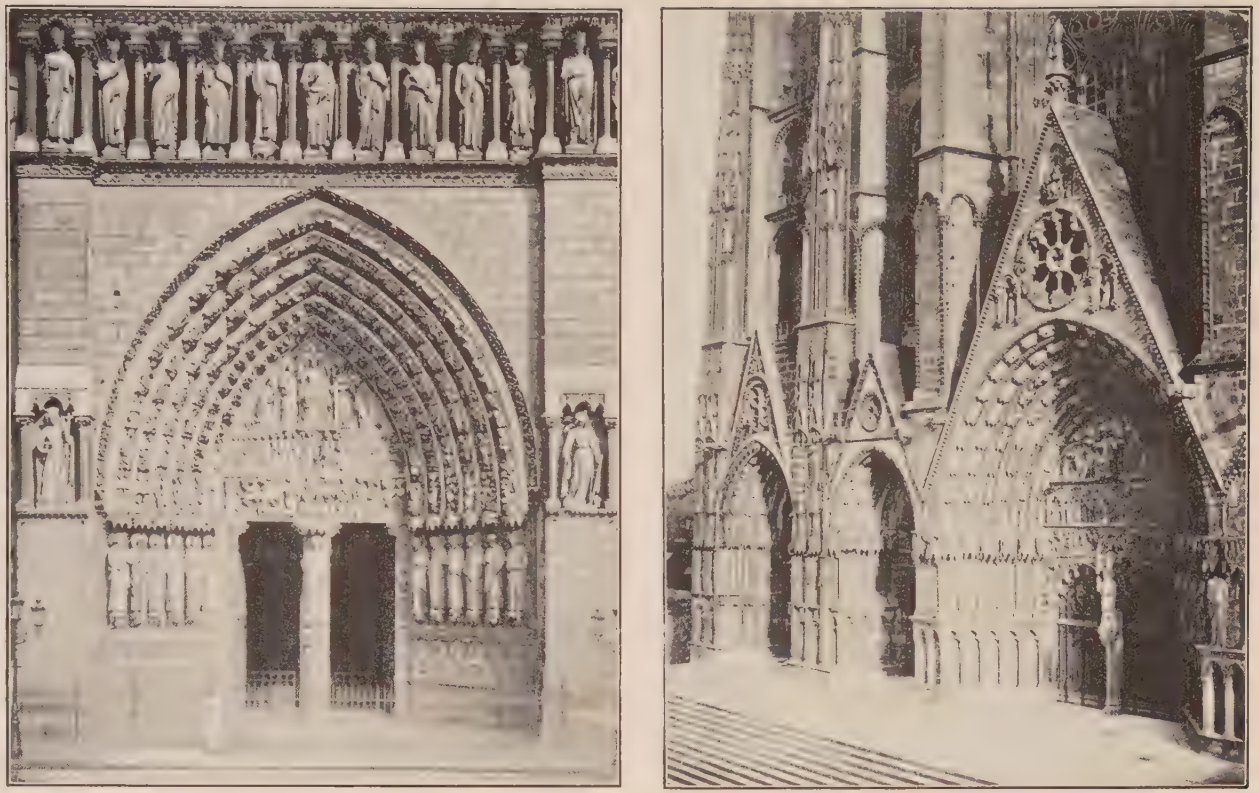
A continuation of the double aisles around the eastern end of the plan, forms a *chevet*, which is a characteristic detail of French cathedral plans. The chevet consists of the passageway around the end of the church and usually includes the apse.

The west front of Notre Dame, Fig. 1, is one of the grandest elevations in France. A high, pierced screen masks the gable at the end of the nave between the two towers, and the horizontal band of sculptured figures, together with the open screen of interlaced arches, produces strong horizontal elements in the design, an effect that was avoided in later examples. Here, however, the bold projection of the buttresses and the freedom of the towers preserve the predominance of vertical lines.

The towers stand practically free for nearly half their height, which lends much to their impressiveness. They are magnificent in themselves, being simply and finely proportioned and possessing openings of great magnitude.

Entrance is effected through three portals at the end of the nave and aisles. These portals have recessed arches, as in the Romanesque entrances, the central portal being six arches in depth, and the soffits of the arches being filled with elaborate carvings and statuary, as shown in Fig. 6 (*a*). The main lines of this design are repeated in the more elaborate designs that follow it. However, notwithstanding its simplicity, this edifice still remains unsurpassed in noble dignity and harmonious proportions.

8. **Bourges Cathedral.**—Bourges Cathedral, which was commenced in 1190, resembles Notre Dame somewhat in



(*a*) (*b*)

FIG. 6

plan, but differs from it in having no transepts. It is very short in comparison to its width, but with its nave 117 feet in height and unbroken by transepts, it presents one of the most imposing interiors of the period, Fig. 7.

The city of Bourges is only a few miles south of Paris, but there is a material change in the climatic conditions, and this change is strongly reflected in the manners of the people and the architecture. Here, the old Roman ideas were well rooted, and the Gothic style never entirely overthrew them. Pointed and round arches are freely intermingled, apparently with little discrimination, but usually with characteristically Gothic supports and mullions.

The west front of this structure, Fig. 6 (*b*), presents five portals, each opening on a separate aisle. The portals are deeply recessed and are carried out slightly beyond the buttresses, instead of simply piercing the walls between the buttresses, as in Notre Dame.

9. Chartres Cathedral.—Chartres Cathedral, Fig. 8, was built between the years 1194 and 1260, and is noted for its sculptures, its spires, and its painted glass. While there is not so much painted glass in this structure as in the cathedral at Bourges or at Rheims, it is particularly brilliant and rich in color effect. The sculpture of the west front of the Chartres Cathedral forms one of the most important collections of Gothic statues in Europe. The transept porches are also richly carved, and present examples unexcelled in any other structure. Over the main portals is a magnificent rose window, which fills the entire tympanum of the nave vault within. This window is beautifully designed in Early Gothic plate tracery, and dates from the early part of the 13th century.

Although at first, the north tower at Chartres seems to be more interesting than its mate, closer study reveals detail in the south tower that characterizes it at once as one of the most interesting in the country. The octagonal spire springs gracefully from the top of the square tower, and the method of joining the two forms is most ingenious. It is

15 FIG. 7

FIG. 8

Fig. 9

accomplished through the employment of eight gables, which serve as finishes at the top of the tower buttresses, and at the same time cover the junction of the octagonal spire with the square tower. In simplicity of style and purity of line, the south tower is one of the noblest examples of the Early Gothic style. The north tower is more ornate, but the upper stages are weak and there is a lack of continuity between the lower part and the portion above the screen-wall arcade. Towers were planned to flank the transepts, but they were never carried above the nave walls.

The plan of Chartres, Fig. 2 (*c*), shows a double row of aisles around the choir, but only a single row each side of the nave west of the transepts. The flying buttresses that support the nave vault are in three tiers, one above the other, as can be seen in Fig. 8, the lower two being connected with radiating arms, like the spokes of a wheel, as shown in Fig. 9 (*a*). This arrangement enabled the builders to make the lower arch very light, as the weight of the one above it would keep it in place.

10. Reims Cathedral.—Reims Cathedral, Fig. 10, built between 1212 and 1241, presents a western front similar in outline to, but more elaborate than, Notre Dame. The façade is strongly marked by vertical lines and is unusually high in proportion to its width. The openings are tall and narrow, and the gables introduced over the portals are acutely pointed, all of which tends to give the façade a lofty aspect that is very imposing. There is one horizontal feature in the upper part, consisting of a gallery of niches containing statues. This, however, is broken around the towers so that the vertical feeling is not interrupted. The rose window over the central portal is a very beautiful example of tracery work, but its insertion under a pointed arch seems to be badly conceived, as the two forms do not harmonize.

The triangular spandrels above the arch are filled with curious carved figures that are varied in size to suit the space, while the canopied niches each side of the portals contain figures of the Madonna and the Apostles. The

FIG. 10

portals at Reims are similar to those at Amiens, Fig. 11, except that they are shallower and contain glass windows in the tympanum instead of carvings. The change is not an improvement, as the glass does not show to good effect on the exterior; neither does the interior require extra illumination at this point, while carving would look well.

The number and size of the flying buttresses at Reims, with their elaborately carved crockets and canopies, as shown in Fig. 9 (*b*), are not excelled in any part of France. The general tendency, however, is toward an overelaboration, or redundancy, of ornament. The detail is beautifully and wonderfully executed, but there is too much of it.

11. Amiens Cathedral.—The plan of the cathedral at Amiens, Fig. 2 (*b*), is generally considered as typical of the French style. It has been neither altered nor rearranged since the erection of the structure in 1288, and consequently does not present that mixture of period details which characterizes the English plans. The plan consists of a broad nave between aisles of half its width, and the aisles extend around the choir at the east end, where chapels between the buttresses form a chevet. The transept is constructed with aisles similar to the nave, but does not duplicate the nave in treatment, as was done at Reims and Chartres. This elaboration of the transept and the introduction of chapels between the buttresses developed from the previous style, but the elaboration of the fronts as they appear in Northern France is far beyond anything attempted in the designs of the Romanesque period.

12. The Amiens, Reims, and Notre Dame cathedrals are all different, yet they present many points of similarity in detail. The façade of Amiens, Fig. 11, consists of two towers in front of the aisles and a screen wall between them, enclosing the nave. The lower portion is occupied by three portals, the central one opening into the nave and the other two opening into the aisles. Immediately above these portals are two bands of arches extending across the entire façade. The upper band consists of a series of niches

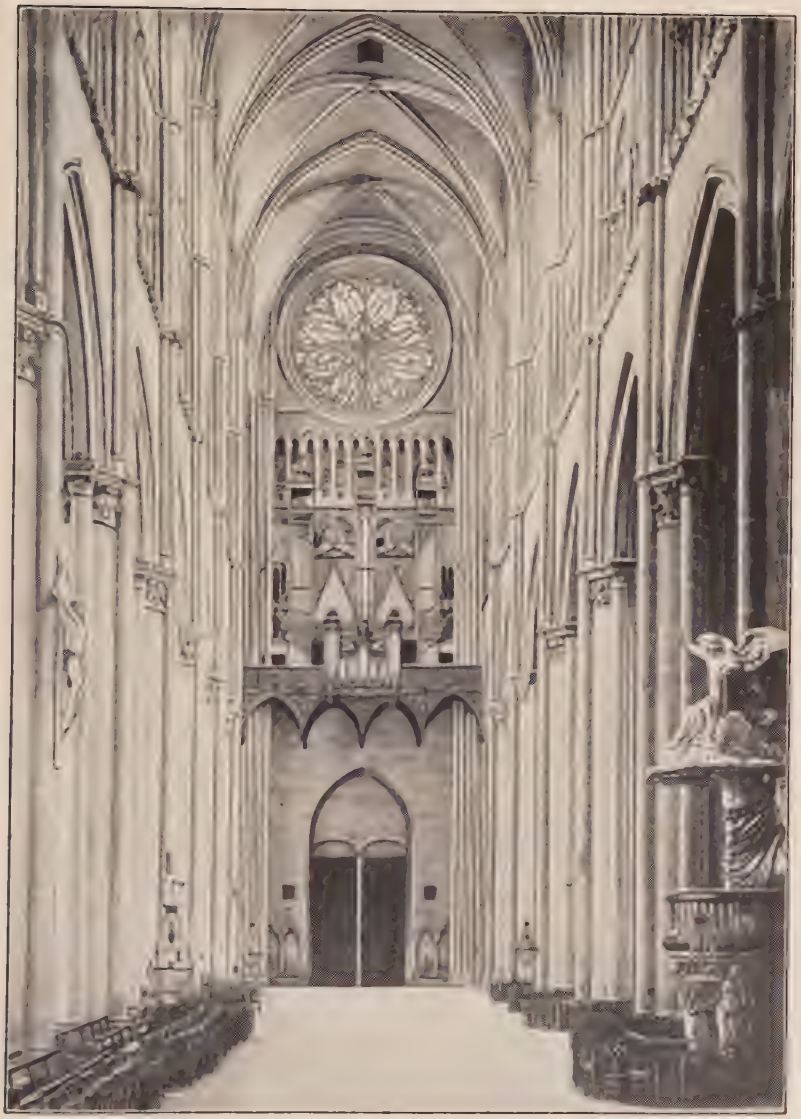
21 Fig. 11

containing statues, and the two occupy a portion of the triforium on the interior. Above the arcades, the wall is pierced by an elaborate rose window that corresponds in position with the clearstory of the nave. At this point the two towers disengage themselves from the front wall and take form as separate details, although the screen wall is still carried up between them, and is crowned with two series of arcades that cover the end of the nave vault.

This treatment of the façade is characteristic of the French style, and variations of it are to be found in Notre Dame and Reims. The proportions of Notre Dame Cathedral are better, owing to the superior designing of the towers and their relations to the rest of the building. The nave of Notre Dame is not so lofty as that of Amiens, as it was built a half century earlier. Therefore, the rose window at the end of the nave lies immediately over the central portal, with only one intervening band of statuary. However, this permits the arcade above the rose window to be much more developed in Notre Dame, where it extends across the entire façade and forms a prominent detail of the front, entirely covering the end of the nave.

The west façades, and especially the portals, are the glory of the French style. There are no entrances in England that can compare with the portals of Notre Dame, Amiens, Bourges, Chartres, or Reims. Peterborough and Lincoln have distinctive portal treatment, but in neither case approach the dignity of the French examples.

13. Elaborate decoration is characteristic of Gothic style in all countries. The designers never seemed to weary of an elaboration of details, and even when the execution is crude and unskilled, there is a sincerity about it that always makes it interesting. The sculpture of the portals presents figures in great profusion, but without any feeling of over-elaboration or redundancy. There is always, throughout the façades, a judicious arrangement of highly decorative and plain surfaces, so that a neutral balance prevails throughout the design.



23 FIG. 12

14. The nave of the cathedral at Amiens, shown in Fig. 12, presents one of the most imposing interiors in Europe. The dimensions are unusual, and the feeling of vastness is expressed without overstraining any one detail. This nave is 470 feet long and 144 feet wide, and the vaulting over it is 140 feet above the pavement. The walls of the interior are plain and present a marked contrast in this respect to the elaborate sculpture on the exterior. The capitals are simple, and the columns consist merely of four semidetached shafts, grouped around a circular pier. A band of simple carving extends along the top of the nave wall, marking the beginning of the triforium, while the clearstory and triforium themselves present very little decoration. The vault ribs are simply molded and as few as possible in number, unlike the vaults of England, and the vertical lines, beginning at the base of the columns, sweep unbroken into the crown of the nave vault with a simplicity that adds greatly to the impressiveness of the interior.

15. Abbey Church of St. Ouen.—The Abbey Church of St. Ouen, at Rouen, the plan of which is shown in Fig. 2 (*f*), is one of the most interesting structures in France. This abbey is the most ancient in Normandy, having been founded in the year 533; but the present church was not begun until 1318. It has been burned and rebuilt twice, so that there is little left of the original structure except in the northern apse of the transept. The rest of the edifice was erected between 1318 and 1345, and is probably the latest pure Gothic work of importance in France.

St. Ouen exemplifies absolute perfection of lightness and grace. The disposition of ribs and buttresses represents the most admirable arrangement of balanced thrusts. Its Gothic framework is merely a skeleton. The tracery is flamboyant, but flamboyant restrained within reasonable limits, and although the church is most beautiful from every aspect, it has the appearance of being almost overdelicate for so large a building. The tower, Fig. 13, at the intersection of the transept and nave suggests English influences, as this

Fig. 13

FIG. 14

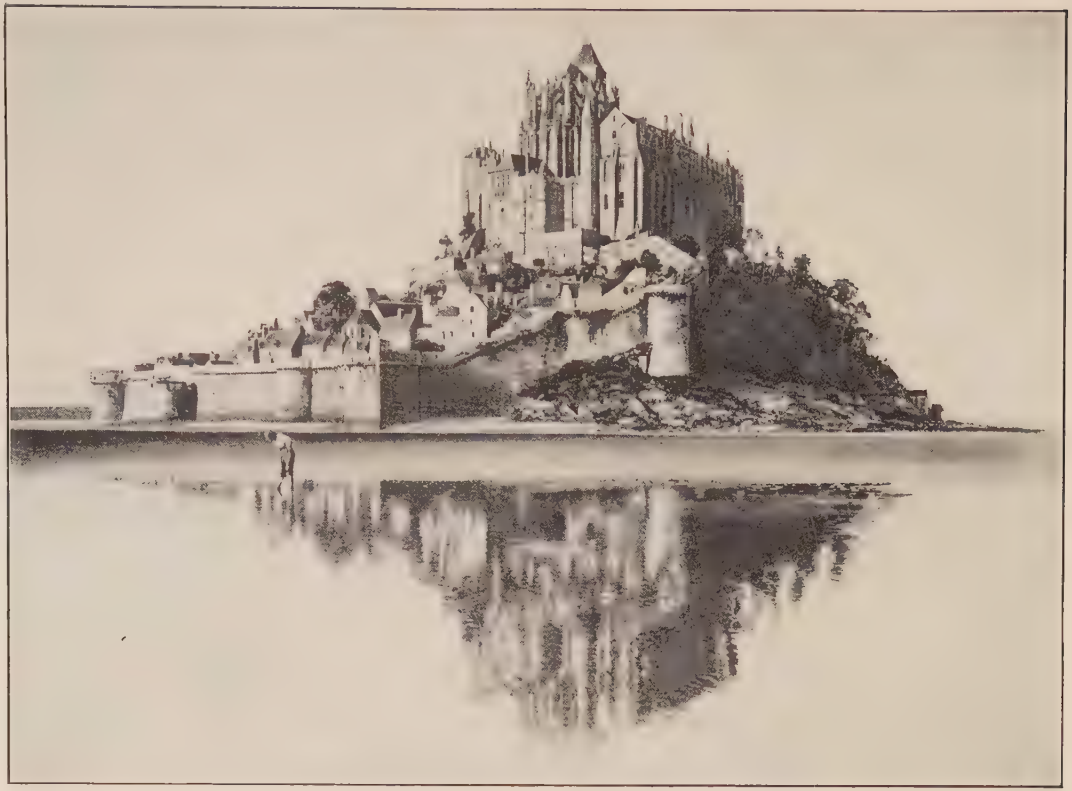


Fig. 15

arrangement was characteristic of the English cathedrals. The western façade, Fig. 14, is of much later date than the rest of the structure.

16. Abbeys and Monasteries.—There were many abbeys and monasteries founded throughout France. Probably one of the most interesting is that of Mount St. Michel, Fig. 15, on the coast of Brittany. It is built on a lonely rock that rises abruptly from the sea, but at a point where the tides rise and fall to such an extent that a part of the time it is surrounded by a vast expanse of wet sand and the rest of the time with pounding waves of the ocean. Originally founded as an abbey, it afterwards became a fortress, as it was close to the coast, and in the numerous wars in which Normandy was involved, it was dragged into conflict.

The early history of the abbey is lost, but it was founded, according to tradition, in the first decade of the 8th century, although no traces remain of any constructions earlier than the 11th century. However, during the dark ages, it preserved the thread of history and kept alive the ancient arts and sciences.

The town of Mount St. Michel is surrounded by a military wall that is protected by towers and turrets. Within this wall lines of ramparts wind about the hill toward the monastery at the top. These ramparts are fortified in every way known to medieval warfare. At the top of the hill, the real entrance to the monastery is reached after climbing a long flight of stone steps. The entrance is flanked by two great towers, with ominous machicolations between them, as shown in Fig 16.

17. The Abbey Church is at the top of the rock. The interior presents a picturesque combination of columns and arches, of both Norman and Gothic design, almost overwhelming in massiveness. From the center of the magnificent Norman nave, its massive details can be compared with the delicate traceries of the Gothic choir, Fig. 17; but even more interesting than this is the contrast between the crypt

29

FIG. 16

FIG. 17

Pl. 43

under the church and the cloisters of the so-called "Gothic marvel" on the other side of the mount. The fact that the monastery was built on a mount rising from the sea prevented the planning of the structures from being carried out strictly on the Benedictine system. The difficulties overcome in the construction of the building on the north side have given it the name "Gothic marvel." The structure is situated at the top of a rugged cliff 160 feet above the level of the sea, which cuts it off from the mainland. All the granite used was quarried on the mainland coast by the monks and then transported across the intervening water.

The building is in three stories, the lowest containing the almonry, or place for the distribution of alms; the intermediate story, the refectory and chapter room, Fig. 18, for the Knights of St. Michel; and the third, the dormitory and cloisters. The chapter room was finished about 1220 and contains four vaulted aisles of unequal width supported on three rows of columns, two of which rest on the piers of the almonry, while the third row rests on the rock itself. The columns and their capitals, together with the ribs of the vaulting, are deserving of special study. The capitals, though similar in general appearance, are widely different in detail, and each vault rib descends independently to the circular abacus. The simplicity of the ribs and the arrangement of the joints are typical of Early French Gothic construction.

18. Above the chapter room, as just stated, are the cloisters, Fig. 19. These were finished in 1228, and are considered to be the most delicate and graceful of Gothic structures. They are built around an open court, similar to the Moorish Court of the Alhambra [see Fig. 80 (*a*)], and it would appear, in spite of the isolation of the spot, that some Moorish influence had been at work when they were designed. Toward the central court, the cloisters are supported by a double row of pointed arches resting on slim granite pillars having an exquisitely groined, narrow vault behind the rows. The capitals are of the plain bell form with circular abacuses, which are common in English Gothic examples but rare in

Fig. 19

French Gothic. The piers of one arcade alternate with the point of the next, and allow the introduction of a graceful scroll from the capital of each alternate pier. The spandrels are elaborately worked in foliated ornament that is beautifully executed and still in a fine state of preservation, and the whole is surrounded by a cornice composed mainly of flowers carved in soft limestone, of which material the arches and other carvings are also composed. The remainder of the construction is of granite.

ANALYTICAL STUDY

PLANS

19. There seems to have been a wide difference in ideas between the English and the French Gothic architects. The plans of the English cathedrals were long and narrow, the length being about six times the width, and the vaults over the naves were low. Cloisters were a characteristic detail, owing to the fact that many English cathedrals were erected on the foundations of, or through the influence of, the monasteries. The cloisters connected with the separate buildings, and the transepts were bold and conspicuous, projecting so far from the main structure as to form a distinctly crucial plan.

In France, however, the plans are short and wide, being about four times as long as the width. The naves are very high. The cloisters are rarely found in any example, except in the extreme south, and the transepts are slight in projection, except in a few instances, as in Rouen Cathedral, Fig. 2 (*e*), while in some cases they are omitted entirely. Side chapels within the church are numerous and are often introduced between each pair of buttresses, as the adoration of individual saints was popular in France and the saying of special masses was more in vogue than in England. In fact, side chapels are seldom met in England, owing to the monastic foundation of the English churches.

The east end of the French church is round, as a rule, forming the chevet, Fig. 2, or processional aisle, while the

English structure was square across the end. Double aisles, as at Notre Dame, Amiens, Bourges, Reims, and Chartres, are common in the French plan, while only two churches in all England possessed this characteristic. Two towers emphasize the western elevation of the French cathedrals, and only a small pinnacle emphasizes the intersection of the transepts and the nave except in the church of St. Ouen, Fig. 13; whereas, in the English cathedral, the tall central tower at the intersection of the transept was the most prominent feature of the structure. Occasionally, in England, prominence was given to a single western tower, as in some western churches, or to double towers, as at Westminster; and in some parts of Normandy, central spires are common.

WALLS

20. The early English buttresses were flat projections. Later, they were much more pronounced and diminished in depth as they arose, the offsets occurring at two or three intervals of the height, the top being crowned with a pinnacle, and the sides being ornamented with niches and later with panels.

In France, the buttresses appear in the Romanesque period about as in England, although they are sometimes semicircular in plan. Later they became very deep, but they do not appear prominently on the exterior of the church, owing to the facts that chapels were built between them and that the walls of the church were built at the outside of the buttresses instead of at the inside [see Fig. 2 (*a*), (*b*), and (*e*)]. These projecting buttresses, like the English, are offset in two or three intervals, the slope, or weatherings, being flatter the higher they appear above the eye, whereas the weatherings of the English buttresses become steeper. In many cases the French buttresses are nearly vertical and without any offsets, while the English buttress of any height is always offset. Flying buttresses exist in some English cathedrals, but they are usually hidden under the aisle roof; in the French cathedrals, owing to the great heights of the

nave and aisles, the flying buttresses are elaborated into an important detail (see Fig. 4).

The interiors of French churches gain effect from their great height, and they are extremely plain, possessing little tracery and ornamentation; on the other hand, the English cathedral is lower and depends on the elaboration of its triforium, the perplexity of its piers, the variety of its clear-stories, and the richness of its vaulting. Battlemented parapets characterize the English wall, while traceried parapets are a distinctive feature of the French. The front elevation of the cathedral of Notre Dame or that at Reims is typical of the French style, whereas the west front of the Wells Cathedral or the cathedral at Westminster, Figs. 71 and 73, *History of Architecture and Ornament*, Part 2, is characteristic of the English.

ROOFS

21. In the English style, the roofs are of moderate pitch, and as the style advances to the Perpendicular period there is a tendency for the roof to become flatter. The roofs of the French cathedrals, however, were always steeply pitched, being ornamented at the ends of the gable with metal finials connected with elaborate crestings. Carpentry was in a better state of advancement in England than in France, and the framing of the wooden roofs was more scientific. Thus, in the English Gothic halls, wooden roofs of an ornamental character are worked as part of the design; whereas, in the French interiors, open-timber roof construction was never properly developed. English roofs were covered with lead; French roofs were usually covered with slate. Vaulting was used by the English designers mostly in the cathedrals and rarely in the parish churches, while vaults were used in nearly every case by the French. The domical Romanesque vault was adhered to in France, while the real development of vaulting and vault ribs characterizes the English style. Fan-tracery vaulting never appeared in France, although pendants are frequently used in the Flamboyant period, and while, in the English vaults, the joints of the

severies are either parallel with the wall ribs or placed diagonally, they are parallel or at right angles in the French vaults.

COLUMNS

22. Characteristic of the English style is the clustered shaft, and in later work this style was always preferred to the single column. In the French style, however, the columns are usually single and circular in plan, due to the influence of Roman tradition. The adoption of this style of column introduced a difficulty in attempting to harmonize the lines of the vaulting with the clumsy shaft below; whereas, in England, the early adoption of the thin shafts as a continuation of the vault ribs, created a basis for a pier formation that avoided such a difficulty. Thus, in England, the molded column or pier became characteristic, and its evolution through each period is easily followed. In the south of France, a square pier is sometimes used with three-quarter columns attached to it, either on the corners or on the faces. In other cases, moldings of the arches merge into the columns themselves without capitals.

OPENINGS

23. It is important to note the great difference in detail between the French and the English style of openings. The doorways in the English cathedrals are simple, and with one or two exceptions are in no way elaborated. The entrances to the French cathedrals, however, are richly ornamented with carved figures and are deeply set in the west fronts, as in Fig. 6. The Early English windows had "plate" tracery, but this was quickly abandoned for the "bar" tracery. The French window of plate tracery is carried throughout the style, the final development being found in the flamboyant characteristics that give that name to the period. Only occasionally are circular windows found in English examples, while such details are characteristic of the west fronts of the principal French cathedrals.

MOLDINGS

24. A great variety of moldings marks the English examples. They are bold and rich in outline and are applied much to capitals and pier arches, as well as to door and window openings. The French moldings, however, are coarse and less delicate, little attention being given to them as decorative features of importance.

ORNAMENT

25. The human figure introduced as a decorative motif was carried to the highest state of perfection in the French style, as may be seen in the great doorways of Notre Dame, Amiens, and Reims, and also in the niches and tabernacles that characterize the façades and portals of Notre Dame, Chartres, Reims, and Amiens.

The introduction of fierce, grotesque figures at the angles of towers and as gargoyles, or waterspouts, characterized the French style. These grotesques represented imps and devils of the infernal regions, or consisted of a weird combination of animal and bird forms typifying both evil and good influences. These figures may be seen around the upper part of the towers of Notre Dame, Fig. 1, while their general character may be more clearly studied by referring to Fig. 20.

These hideous creatures were not prominent characteristics in the early Christian period, but were introduced mostly in the 10th century, during the general panic that was caused by the belief that the end of the world would come in the year 1000. The object of introducing them is supposed to have been to excite a religious influence by inspiring terror in the heart of the wrong-doer and thus urge him to repentance. Thus, such creations as shown in Fig. 20 (*a*) and (*d*) were perched on the towers of Notre Dame in an attitude as if watching for their alloted victims at the day of judgment.

Through a tradition handed down from the Hebrews, the dog was considered as associated with evil, and is frequently

so classed in the Bible; hence, the double-headed creature shown at (*c*). The pelican shown at (*b*), was, however, an

FIG. 20

emblem of repentance and atonement. According to tradition, these birds sometimes killed their half-grown young, and then, repenting their deed, tried to restore life. This

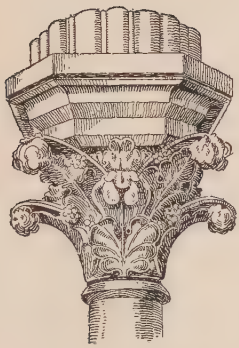
they did by tearing open their own breasts and feeding their own life's blood to the dead offspring.

26. The capitals of the columns and piers show a derivation from the Corinthian order. Crocket capitals and the stiff-leaf foliage under a square abacus are also to be found. The molded bell capitals without any foliage whatever are rare, except in Normandy, where English influences were felt. In England, however, the classic type of capitals is rarely found. The earliest carved capitals introduced the characteristic stiff-leaf foliage, and throughout all periods the bell form with the liberal projection is used under certain conditions. The abacus of the columns is seldom square, but is frequently octagonal or polygonal and usually round.

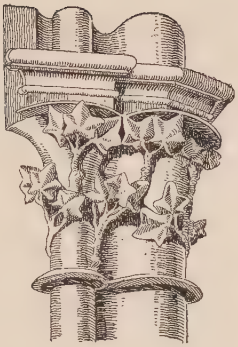
In the Early French capitals, the foliage springs directly from the tops of the shaft, as shown in Fig. 21 (*a*), and spreads out so as to support the octagonal abacus; later, however, the foliage was carved on the surface of a bell-shaped core, as shown in (*b*). The structural relation between the foliage and the core being entirely ignored, the character of the foliage itself finally degenerated into forms similar to that shown in (*c*), where there is neither reason nor symbolism in the design.

The capital shown in (*a*) is a conventional arrangement of foliage made to crown a supporting member. In (*b*) there is a naturalistic rendering of a vine growing around the top of a supporting member, playing a decorative but not a structural part. In (*c*) there is a grotesque foliation planted against the top of a supporting member. This plays neither a decorative nor a structural part, and it actually destroys the governing lines of the support. These three capitals are, respectively, examples of the Early French, Rayonnant, and Flamboyant periods.

27. The running ornament presents the same characteristic during the three periods, as shown in Fig. 21 (*d*), (*e*), and (*f*). The foliage in (*d*) seems to grow naturally and gracefully from the surface, while that in (*e*) springs geometrically and at precise intervals from the lower member of



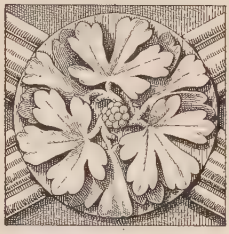
(*a*)



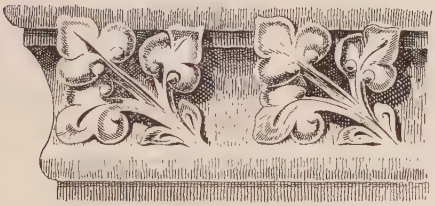
(*b*)

(*c*)

(*d*)

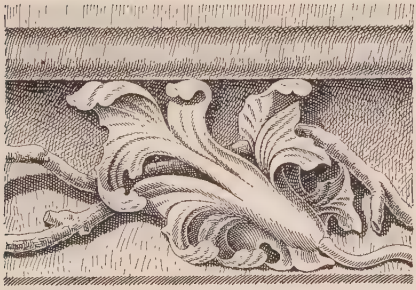


(*g*)

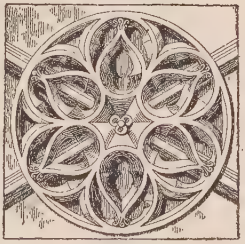


(*e*)

(*h*)



(*f*)



(*i*)

FIG. 21

the molding. In (*f*), however, the foliage does not seem to be attached to the surface at all, and the leaf form is as grotesque as that on the capital shown in (*c*).

In (*g*), (*h*), and (*i*) are shown three bosses as they were carved at the intersection of the vault ribs.

Fig. 22

28. The stairway shown in Fig. 22 is from the cathedral at Rouen. The tracery work of the balustrade is elaborate in design and refined in execution. The designs of the first three runs are different, and the entire composition is as light and dainty as can be found anywhere in France.

The decorative sculpture in the English style, however, was not carried out nearly so extensively as in the French style, although the walls of Lichfield Cathedral and Westminster Abbey are rich in this respect. The "dog-tooth" is very common in the ornament of the early style, but the carved work varies considerably in successive periods, being conventional in the Early English period and decidedly naturalistic in the Decorated. The Perpendicular period returns again to conventionalism. Stained glass is found in both countries, although the best that existed in the French cathedrals was practically destroyed during the revolution.

29. Color Decoration.—In England, color was applied to wall surfaces and to sculpture. The roofs and screens of the Perpendicular period show elaborate combinations, and these characterize the details of the French style also. In both cases are found hangings imitated in painted wall decorations, as well as representations of niches, canopies, and other architectural details. In Fig. 89 (*e*), *History of Architecture and Ornament*, Part 2, is shown a design based on the intersection of a number of circles whose centers are found at the intersection of evenly spaced vertical and horizontal lines, thus showing the geometrical construction, while the color scheme was a stenciled pattern of gold against a pink ground. At (*f*) of the same figure the wall is divided in lozenge forms by equally spaced diagonal lines; a fleur-de-lis is stenciled in gold against a blue ground in every alternate lozenge and a foliated form against a gold ground in the others. These are but two of an unlimited variety of designs that were used in color decoration, all of which were simple in character and carried out as repeating diaper ornament.

DUTCH AND BELGIAN GOTHIC

(1225 A. D. to 1520 A. D.)

INFLUENCES

30. Geographical.—Holland and Belgium constituted what was known as the Netherlands, being wedged in between the German empire, France, and the North Sea (see Fig. 23). Belgium was under French rule for a long time, while Holland came under German influences. The architectural style in these countries, therefore, is influenced by their geographical position and their political relations.

31. Geological.—An abundance of good brick-making clay is found throughout the Netherlands, especially in Holland, and brick structures are therefore characteristic in these countries. Considerable stone was also used, particularly in Brussels and in Tournai, as is shown in the cathedrals of those two cities, Figs. 24 and 26.

32. Climatic.—In general respects, the climate of the Netherlands is the same as that of England, but with greater extremes of heat and cold.

33. Religious.—Constant wars between the surrounding nations brought the Netherlands successively under the control of France, Germany, and Spain. Therefore, the ecclesiastical architecture was affected by the religious forms of the country that was dominant during the erection of each particular edifice.

34. Political and Historical.—Peculiar conditions of government arising from the tendency of the people toward industry and manufacture caused much rivalry between the principal manufacturing cities. In the numerous wars in which the Netherlands were involved, either directly or as

the bone of contention, different cities sided with opposing nations, and the architecture of each developed accordingly.

Flanders became united with France in 1585 when Philip of Burgundy, first duke of Valois, married Margaret of Flan-

Fig. 23

ders, and subsequently the whole of the Netherlands came under the rule of the dukes of Valois, who were descendants of the French kings.

The characteristic structures of the Netherlands are the *town halls* and *gildhalls*, which rivaled each other in expressing the wealth of each individual community. The town halls were political buildings in which the municipal council met for the government of the city, but the gildhalls were essentially the homes and meeting places of the various societies of trades and crafts. The prosperity of the merchants and weavers is fittingly reflected in the great gildhalls at Antwerp, Ghent, Brussels, Louvain, and other cities.

The various gilds so characteristic of this period are of two kinds—the merchants' gilds and the crafts' gilds. The former probably originated in England, where early in history the king had granted certain associations of tradesmen exclusive rights to carry on trade without tolls or taxes. This amounted to a monopoly and the merchants' gilds exacted a period of apprenticeship and confined the applications for membership to their own sons and relations. The crafts' gilds were similar in character and their essential purpose was a monopoly of industrial pursuits. Members of the crafts' gilds were sometimes permitted to enroll in the merchants' gilds, and were then permitted to carry on a retail trade. Otherwise the products of the crafts' gilds were sold to the merchants' gilds and by the latter retailed to the public. All articles manufactured by the crafts' gilds were stamped with the gildhall mark, and by these marks much of the old silver and gold plate can be recognized at the present day. The gilds were subject to local laws in the cities wherein they were chartered and therefore used their utmost influence in the enactment of local ordinances. The gilds through their great monopoly became immensely wealthy and in times of danger furnished money and men for military service to defend their cities against others. In some sections, they formed leagues and maintained a military organization for the preservation of peace in the interests of trade. During the middle ages, the principal cities of the Netherlands were the richest and most powerful in Europe, and such was their rivalry that, under the feudal system, they were almost constantly at war with one another.

CHARACTERISTICS

35. Belgian architecture during this period presented two general types: the high part farthest from the coast was German in character, while the low part, commonly known as Flanders, reflects French influences. In the domestic buildings, a number of Spanish details are discernible, but in the development of their town halls, a type of architecture was evolved with national characteristics that are unequaled in any other country of Europe.

One of the chief characteristics of the Dutch is simplicity, and in their ecclesiastical structures is found a plain, barren treatment that is not present in the architecture of Belgium. It is unfortunate, however, that at the time of the Renaissance there was so much opposition to religious detail in architecture, that much of the ornament in many of the buildings was destroyed.

The Netherlanders were intensely religious, but at the same time they were skilled and experienced tradesmen and therefore expressed themselves architecturally more in their secular buildings than in their cathedrals. Where the pride of the French was concentrated in their cathedrals, the pride of the Netherlands was expressed in their municipal buildings, gildhalls, and city fortifications. In fact the wealth of the gilds is expressed in all of their architecture whether it is ecclesiastical or secular. It was the gilds that erected the great gildhalls for the pursuit of their crafts and trades, and it was through the gilds that the great town halls were erected to house the administration councils. The protection of the commerce of the cities required the construction of fortified gates and it was the gilds that made these both necessary and possible. So that the characteristics of the medieval architecture of Holland and Belgium are expressed more in their secular buildings than in their cathedrals.

It should be borne in mind, however, that these powerful organizations existed in other countries also, but they did not so directly affect the architectural character as here in the low countries.

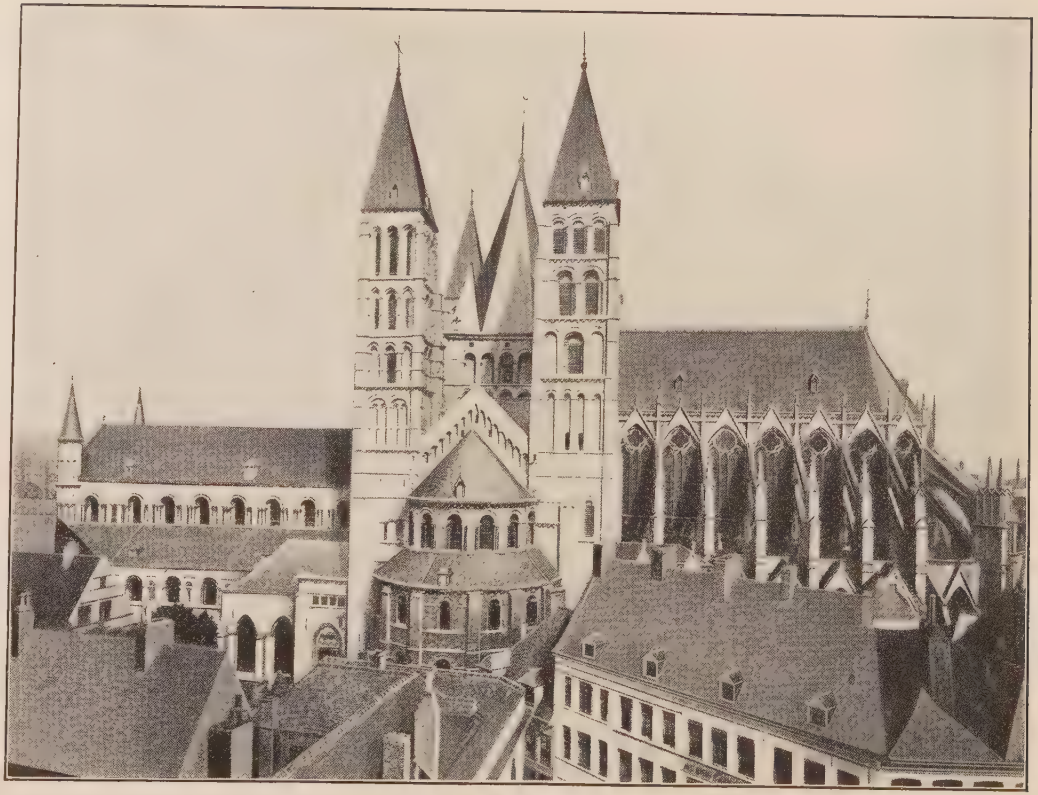


FIG. 24

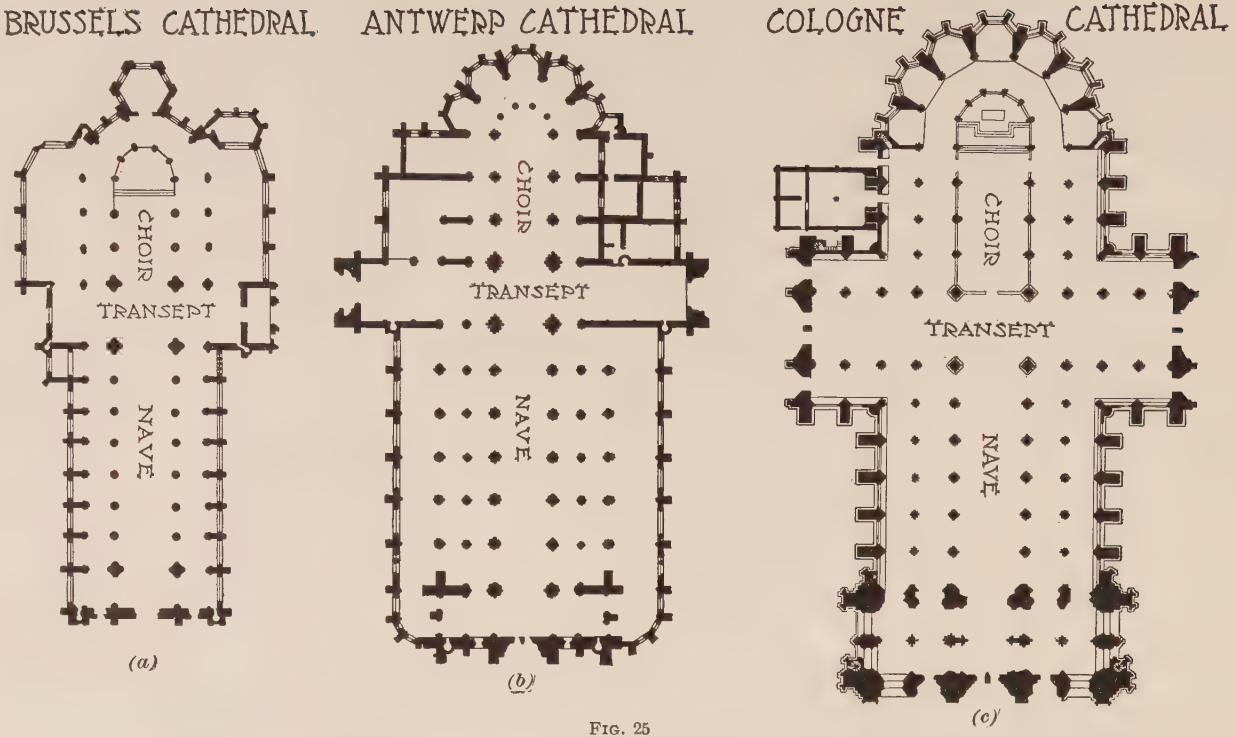

BRUSSELS CATHEDRAL
CHOIR
TRANSEPT
NAVE
(a)
ANTWERP CATHEDRAL
CHOIR
TRANSEPT
NAVE
(b)
COLOGNE CATHEDRAL
CHOIR
TRANSEPT
NAVE
(c)

FIG. 25

EXAMPLES

36. Tournai Cathedral.—In ecclesiastical architecture there are many cathedrals that show a decided inclination in the arrangement of their plans to French ideas. The cathedral at Tournai, Fig. 24, presents a comparison of the older Romanesque style and the newer Gothic in the matter of height. The nave of this beautiful church is Romanesque, as will be easily seen, while the choir is Gothic of the best period. The breadth of the two parts is about the same, and the roof of the aisles rises to about the same height both at the west and the east ends. The nave of the choir on the east, however, rises about twice as high above the aisles as does the nave on the west.

The problem that thus confronted the builders was the roofing of the nave of a building at a greater height than could be accomplished simply by the use of heavy walls to withstand the thrust of the roof, or vault. This problem was solved in the same manner as in the cathedral of Notre Dame, Fig. 4; that is, by carrying the central walls on the nave piers and by taking up the thrust of the roof vault by means of immense flying buttresses carried over the surrounding aisles. The choir, or east end, of Tournai Cathedral therefore presents much the same appearance as the east end of Notre Dame, while the nave, or west end, is much lower, in accord with the earlier Romanesque system of building. The towers flanking the transept and at the crossing give great prominence to this part of the edifice, while the west end, which is elaborate in both French and English examples, is here of secondary importance.

37. Brussels Cathedral.—Brussels Cathedral, the plan of which is shown in Fig. 25 (*a*), was erected in 1226 A. D. This building is the earliest example of Gothic work in Belgium, and probably one of the finest in the country. On the eastern end, the French chevet and choir are partly developed, and the whole was vaulted with stone during the

51 FIG. 26

14th and 15th centuries. The west end is particularly imposing, standing as it does on a terrace approached by two flights of monumental stairs, as shown in Fig. 26. The nave of Brussels Cathedral is much loftier than the aisles, and two tiers of flying buttresses are required to take up its thrust, as shown in Fig. 27 (*a*). The sustaining buttresses are built within the side walls, as in the French cathedrals, and almost the entire space between these buttresses is taken up by windows, as is shown in the plan.

38. Antwerp Cathedral.—Antwerp Cathedral, the plan of which is shown in Fig. 25 (*b*), is remarkable for its triple aisles of equal height and its very narrow transept without aisles. One of the aisles is carried around the choir, forming a chevet, but the rest of the plan beyond the transept is irregularly cut up into chapels. The three aisles each side of the nave are of unequal width, as is shown in the section, Fig. 27 (*b*), and are independently covered with a hip roof. The clearstory therefore extends almost to the top of the nave arches, and the triforium is omitted entirely (see Fig. 28). The nave is not as much higher than the aisles here as in Brussels Cathedral, as the springing point of the nave vault is not far above the vaults of the aisles. The nave is narrower in proportion to its height than the nave of Brussels Cathedral, and, as the walls are thicker, there is no necessity for flying buttresses. The omission of flying buttresses renders unnecessary also the low, inclined roof over the aisles, as in the French and English cathedrals; so we find here a high, hipped roof quite as steep as that over the nave. The narrowness of the nave adds to the appearance of height but cramps the interior effect. The west front, Fig. 29, was finished about the year 1518, and presents the principal characteristics of the Late French style. The florid design of this front reflects the taste of the wealthy tradesmen of that period, and it is so rich that the redundance of decorative detail may be overlooked. Especially is this true of the north tower, which is one of the most delicate pieces of tracery decoration to be found in Europe.

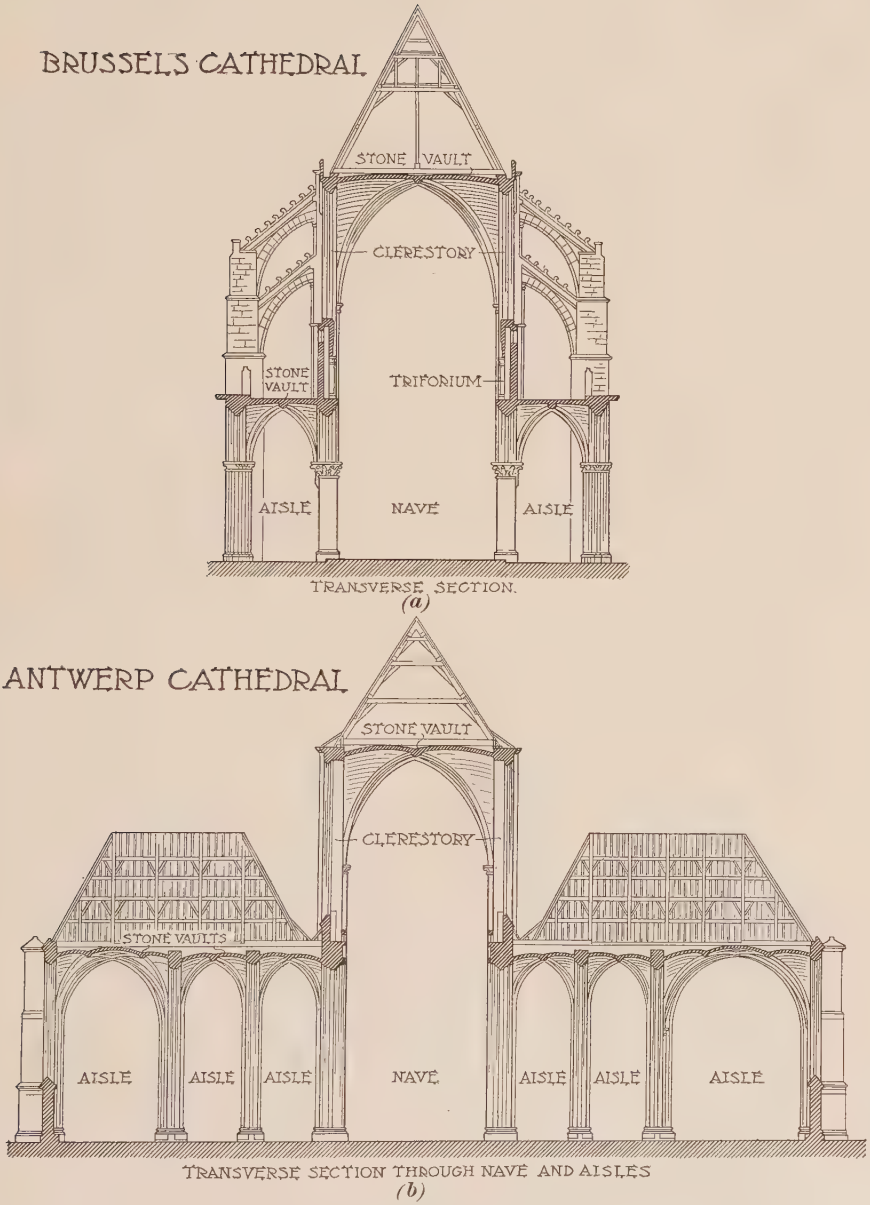

BRUSSELS CATHEDRAL
STONE VAULT
CLERESTORY
STONE VAULT
TRIFORIUM
AISLE
NAVE
AISLE
TRANSVERSE SECTION.
(a)
ANTWERP CATHEDRAL
STONE VAULT
CLERESTORY
STONE VAULTS
AISLE
AISLE
AISLE
NAVE
AISLE
AISLE
AISLE
TRANSVERSE SECTION THROUGH NAVE AND AISLES
(b)

FIG. 27

218 —9

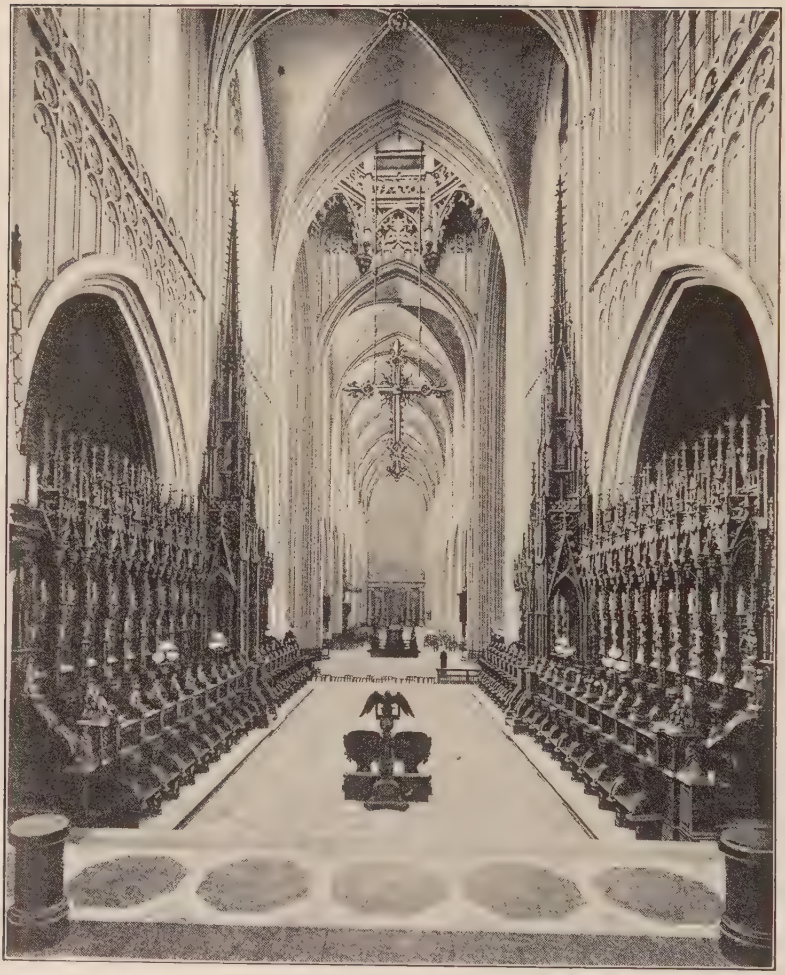


FIG. 28

55

FIG. 29

ANALYTICAL STUDY

PLANS

39. The cathedral plans in the Dutch and Belgian Gothic architecture were short and wide, somewhat after the French model. The chevet treatment that occurs in so many instances is also an evidence of French influence. The transepts were small and projected only slightly beyond the body of the plan.

WALLS, OPENINGS, AND ROOFS

40. The characteristics of the walls, openings, and roofs of the Dutch and Belgian Gothic period are more prominent in secular than in ecclesiastic architecture and will be considered in Art. **119.**

COLUMNS

41. Round piers, occasionally with smaller piers attached, are used to support the nave walls, but the clustered pier so common in the English style is rarely seen in the Netherlands.

ORNAMENT

42. Painted ornament was not popular in the Netherlands, although much decorative effect was obtained by various brick and tile fillings. The wealth of the tradesmen caused much of the ornament to be elaborate and ostentatious, but in the majority of cases it was carried out with a taste and refinement that is characteristic in all parts of the country.

Moldings and other decorative details lack character and possess neither the boldness of the French nor the delicacy of the English. The greatest activity in Belgian and Dutch Gothic architecture occurred at a period when the style was on the decline in other countries. The ornament is therefore of an inferior grade.

GERMAN GOTHIC

(1270 A. D. to 1535 A. D.)

INFLUENCES

43. Geographical.—On three sides—east, west, and south—Germany was flanked by large empires possessing strong national differences (see Fig. 43, *History of Architecture and Ornament*, Part 2). This situation rendered communication with other European states most convenient, and the Rhine River flowing through the north contributed greatly to the rise and development of the cities founded on its banks at the time Germany was a province of Rome.

44. Geological.—In Northern Germany there is scarcely any building material except clay, and brick structures therefore characterize the architecture of this region more than of any other country. In the south there are several stone quarries, and immense timber tracts exist in the northwest, near Hanover.

45. Climatic.—The climatic influences are the same as for Romanesque architecture.

46. Religious.—The rule of bishops in Germany was political as well as ecclesiastical, and the government of the city and that of the Church were practically one and the same thing. This system was closely adhered to in some of the principalities until the close of the 18th century.

47. Political and Historical.—The gilds and societies of craftsmen rose to great importance in Germany during this period and leagues or combinations between important cities were formed in the interests of trade; while the freemasons in particular are credited with great influence in the working out of the Gothic designs. There are no existing

records, however, and the individuality of the architects during this period is known in only a few cases.

In the 12th and 13th centuries, Germany was the heart and center of the Holy Roman Empire. Frederick Barbarossa, King of Germany and Emperor of the Holy Roman Empire, endeavored to curtail the liberties of the cities of Lombardy, and interfere with their election of their own magistrates and other officers. It will be remembered that Lombardy was taken by Charlemagne and united to the Kingdom of the Franks in 773 A. D. The Lombards, supported by the pope, organized a league of cities known as the Lombard League, to oppose Frederick, and they succeeded in defeating him and maintaining their liberties. During the years between 1254 and 1274, no one king was acknowledged by all the German principalities, in consequence of which considerable lawlessness existed. This is known as the period of the "Robber Barons." The country was dominated by feudal lords and many castles were built. In 1274, however, the house of Hapsburg came into power, under which the German principalities were united into one empire.

That the useful arts did not decline during this period of confusion was due to a combination of the gilds of several cities, known as the Hanseatic League, which, in Northern Germany, effected an alliance of the great commercial towns for mutual protection against lawless marauders. The influence of this league was so great that the arts and manufactures proceeded in the towns where it existed without interruption during these turbulent times. At first the League aimed solely to resist the unjust extortions of the feudal lords, to prevent robbery and to stimulate commerce and industry. About the middle of the 14th century it became so powerful that it monopolized the trade of Northern Europe. It maintained armies and navies, made war against and defeated the kings of Denmark, Sweden, and Norway, compelled Edward IV of England to increase its already excessive privileges, and finally became so intolerable that it declined almost as rapidly as it rose.

CHARACTERISTICS

48. Gothic architecture in Germany did not develop so systematically and progressively from the Early Romanesque architecture as it did in France and England. In many instances it was borrowed directly from the French style. The Romanesque style prevailed longer in Germany than it did in France, and no Gothic buildings were erected before the 13th century. Gothic architecture was adopted by the Germans at the time when it had attained its highest development in France, but Germany had then adhered so long to the Romanesque style that she could not abandon all of her Romanesque characteristics when she erected her structures in Gothic. As said before, in Northern Germany the lack of building material caused the development of a style in brick, as was the case with the Romanesque style in Lombardy.

The Germans were skilled craftsmen and wood construction is conspicuous in sections where other building material is scarce. Many small buildings were framed of wood and filled in with brickwork between the wooden construction. This was a characteristic Gothic construction, as the woodwork was used to support the floors and roof, while the brick walls were mere screens between the supports, as was the case with the cathedral walls between the aisle buttresses. The exposed woodwork was frequently elaborately carved with intricate designs, as the Germans always tend to complicity rather than originality in design. Even in their stone structures there is much intricate carving, and the spires of the German cathedrals are so elaborately pierced and traceried that they have at a distance the appearance of delicate lace.

Town halls and gildhalls exist throughout Germany, as in the Netherlands, and the German cities united to protect commercial interests, but the influence of these leagues and combinations is not so reflected in the architecture as in Holland and Belgium.

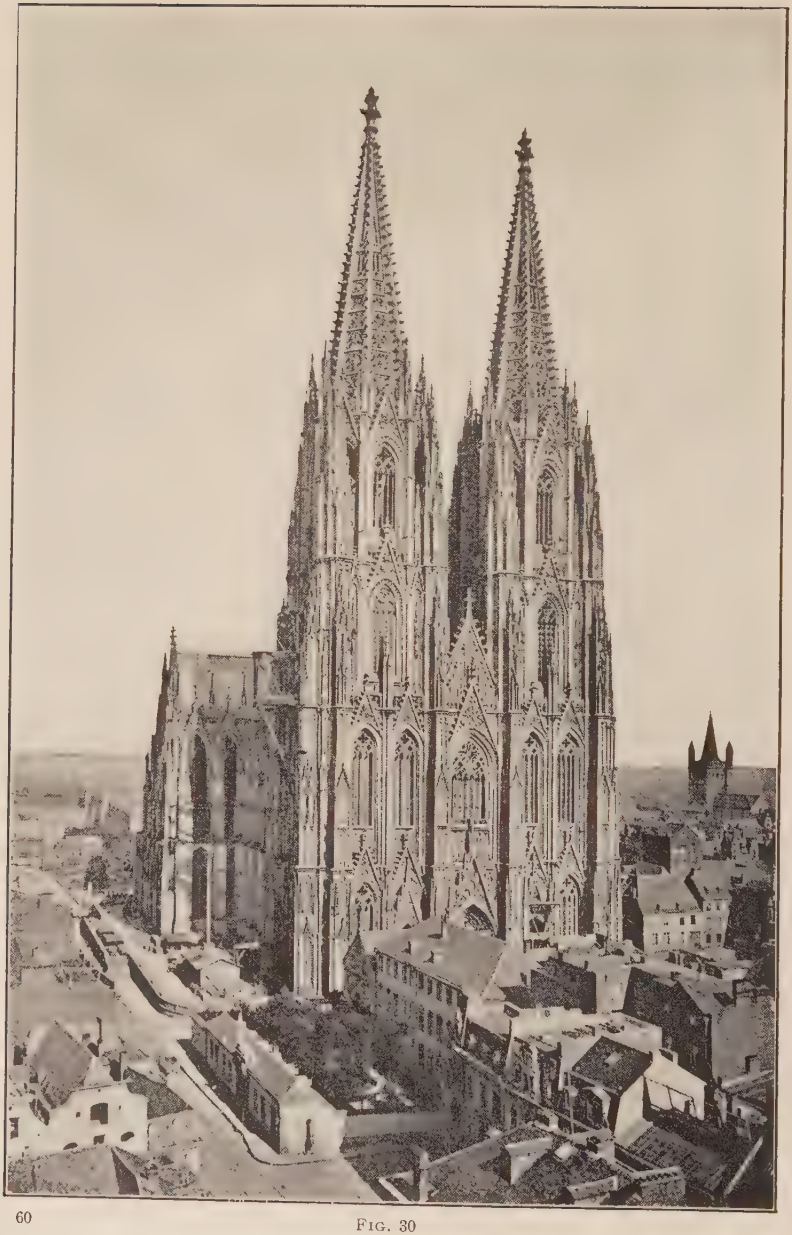


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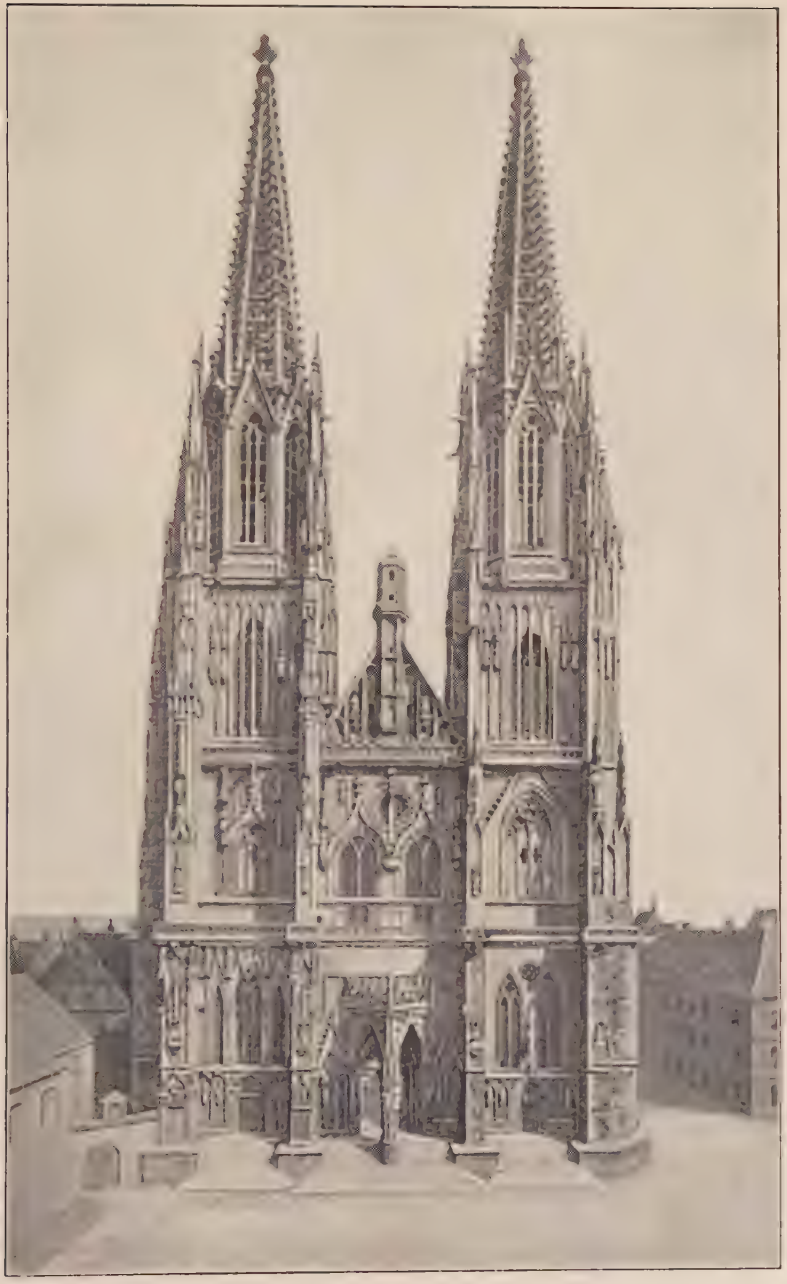
FIG. 30



61

Fig. 31

EXAMPLES

49. Cologne Cathedral.—The plan of the Cologne Cathedral is shown in Fig. 25 (*c*). This edifice presents the finest example of the Gothic style in Germany. It strongly resembles Amiens Cathedral, Fig. 2 (*b*), in plan and dimensions, the eastern end being almost a direct copy. It is the largest cathedral in Northern Europe, being 468 feet in length and 275 feet in width. The choir was completed in 1322, which was 52 years after the building was commenced, but the cathedral as a whole remained unfinished until the 19th century. The nave is very imposing, being 155 feet in height from the tiles to the vaults, and 41 feet 6 inches between the supporting piers. The spires that decorate the western end are characteristic of German Gothic style, being pierced with elaborate tracery, which gives them the appearance of open lacework (see Fig. 30).

50. Ratisbon Cathedral.—Ratisbon Cathedral, erected between 1275 and 1534 A. D., possesses a symmetrical plan with an octagonal apse at the eastern end, instead of a chevet, as in the French plans. The western façade, shown in Fig. 31, was not added until the 19th century. This part of the structure possesses some unusual features, such as the triangular porch in the center and the octagonal lantern over the central gable. The two towers are not symmetrical in the two lower stories, but are alike above, and the spires of lacelike tracery, which is characteristic of the German style, are similar to those of Cologne.

51. Ulm Cathedral.—Ulm Cathedral, Fig. 32, differs from the preceding example in that it possesses a single western tower. This tower is 529 feet high, is richly ornamented with tracery, and presents a solid and substantial design, contrasting strongly with the previous examples. This structure possesses double aisles, over which flying buttresses carry the thrust of the nave vault to the sustaining buttresses at the sides.

Fig. 32

ANALYTICAL STUDY

PLANS

52. The plans of the German Gothic cathedrals were a combination of those developed under the early Romanesque style and the adopted plan of the French Gothic cathedrals. The chevet does not seem to have been borrowed as generally as other French details, although it is found in the cathedrals at Cologne, Magdeburg, Lubeck, and Freiburg. Twin towers, with pierced spires surmounting them, exist at the west end of the cathedral at Ratisbon, Fig. 31, and occasionally a single central tower is observed over the intersection of the transepts and the nave, somewhat after the English churches. The entrances are not always found on the west end, which seems to have been characteristic of French and English cathedrals, but are frequently on the north and south sides, as in the Romanesque plans.

WALLS

53. The arcaded galleries under the roofs of the apses, so characteristic of the Romanesque style, were duplicated in the German Gothic period without any apparent thought of their origin or meaning (see Art. **105,** *History of Architecture and Ornament*, Part 2). Tracery was largely employed on wall surfaces, and mullions in the windows frequently divided the openings inside.

ROOFS

54. The roofs were usually vaulted, although wooden roofs existed in some cases. The vaulting was very carefully constructed, and the nave bays were usually square with two aisle bays connecting them. It was not until a later period that the vaulting of oblong bays was attempted, but at Ratisbon, Cologne, and elsewhere, oblong bays became general.

A unique feature of some German Gothic churches is the immense roof, covering at one time and in one span, the

nave and both aisles. This was a typical German system of design known as the "Hall church," and was made possible through the aisles and the nave being equal in height.

COLUMNS

55. In the nave, the main piers are used to support the vaults, as, owing to the great height of the aisles, no attempt was made to introduce semidetached columns.

OPENINGS

56. Double tracery windows are used in later examples, and the tracery was exceedingly elaborate. The characteristic of these openings is the great height; in many cases, two tiers of windows were used because the aisles were very high. In the northern part of Germany, the clearstory starts very low down and is excessive in size, thus presenting a great expanse of stained glass.

ORNAMENT

57. Foliage was treated in a naturalistic way, and boughs and branches were carved in interlacing forms of tracery, which is a characteristic of German carved ornament. The carving itself is usually superior to the design, and the intricate tracery in some of the windows is much more interesting as a technical display of skill than as an expression of grace in outline.

During this period sacrament houses, or tabernacles, were developed in the form of lofty tower-like structures. They were usually built of stone and against the wall, but occasionally they were isolated. The general design was to represent a Gothic spire with pierced-tracery windows and a multitude of pinnacles and canopies, all carried out in miniature. Stained glass and ironwork were elaborately treated, and the diaper work was similar to the French but with German devices instead of the fleur-de-lis. See *History of Architecture and Ornament*, Part 2, Fig. 89 (*d*).

ITALIAN GOTHIC

(1235 A. D. to 1450 A. D.)

INFLUENCES

58. Geographical.—Italy, the home of classic art, was separated by mountain ranges from the nations of Northern Europe (see Fig. 25, *History of Architecture and Ornament*, Part 2). The Bremer Pass through the mountains to Germany was the only means of communication between that country and Lombardy, while Venice had its outlet through its maritime relations with the Orient. It is evident that these different communities, on account of their positions and domestic relations with other countries, must have been subjected to widely different influences.

59. Geological.—Northern and Central Italy supplied abundant and beautiful marbles that were highly prized as wall decorations, and in Florence, Sienna, Genoa, Orvieto, Lucca, and other places, this material was used for this purpose without carving or decorative treatment. Red, black, and white marbles existed in profusion, and, by means of these stones, stripes and panels were introduced into the side walls for decorative effects.

60. Climatic.—This country with its continuous and brilliant sunshine, warm summers, and mild winters, rendered the construction of large openings undesirable. Hence, the windows are low and narrow and the walls are thick, so as to keep out the glare and heat of the Italian summer, a condition that would not lead to the development of window tracery. Decorative treatment in the form of mosaics and frescos shows the influence of the Romans and makes up for the lack of inclination that the Italians showed to construct large windows and fill them with stained glass.

61. Religious.—On the death of Pope Gregory X, in the year 1276, the power of the popes at the head of the Church was lost, and the succeeding popes were under the influence of the king of France. For 70 years they resided at Avignon in France, which is so far from Rome that their authority was scarcely felt there. A rivalry also existed, so that at one time there were two popes, this state of affairs continuing until a settlement was effected by the Council of Constance, in 1415. During the period from 1250 to the beginning of the 15th century, two religious factions were constantly quarreling in Italy and thus materially retarded harmonious development.

62. Political and Historical.—After Charlemagne (see *History of Architecture and Ornament*, Part 2, Art. **71**) several kings succeeded as rulers of Italy, the last of whom being dethroned, Italy fell prey to the ambitions of several feudal lords and was devastated by civil wars, and invasions from Hungary and from the Saracens, until the year 962, when the Holy Roman Empire was again restored under Otho I. The policy of this emperor was to reduce the number and authority of the feudal nobles; to favor the growth of cities and municipal authority; and to reduce the temporal power of the pope by taking part himself in the pontifical elections. This brought about bitter conflicts between the pope and the emperor, which continued throughout the reigns of their successors. In 1155, Frederick Barbarossa, who was elected emperor of Germany, effected a reconciliation and was crowned by the pope as emperor of the Holy Roman Empire. (See Art. **47.**) Italy was divided into small principalities and cities, between which there was great rivalry. The erection of the great cathedrals at Siena, Orvieto, Florence, Milan, and Lucca was due to the pride of these communities and the desire that no neighboring community should excel in architectural construction. Numerous town halls show the wealth of the municipal institutions, and other countries considered Italy the head of arts and science, learning, and commerce.

CHARACTERISTICS

63. The classic forms of construction and decoration that are found throughout Italian Gothic architecture can leave no doubt that this style never had a fair opportunity to develop itself. The high-pitched roofs that characterize the Gothic style in other countries are lacking here. The naves apparently possess flat roofs, and the roofs over the aisles are masked on the exterior behind a screen that hides the slope of the roof behind. There is an elaboration of detail and carved work, but the moldings are flat and unimportant, their place being taken by colored marbles. Buttresses are not treated either structurally or decoratively, and pinnacles, therefore, are not generally prominent. The cornice around the walls is elaborately treated as a screen, and heavy porch projections characterize the entrances. The sculptures are classic in style, and in this respect are preferable to those in Northern Europe, but they do not associate themselves so intimately with the architecture. The capitals are Corinthian in form, and the Roman acanthus is constantly used in the Gothic foliage. Mosaic continues to be seen, as in the Roman buildings, and decorated moldings of terra cotta take the place of carved moldings.

It was during this period in Northern Italy that molded brickwork was developed to its greatest perfection. The Italians used their brick in an original and proper way. The details were small, and the interest, elsewhere developed by great projections and variety of shadow effect, was here attained by variety of color in the brickwork itself. Stones of different colors were used in patterns, giving special character to some of the work. The result, however, is a flatness and want of shadow effect, as there is very little projection to some of the cornices. This, however, was satisfactory to the Italian designers, as they wanted the material to express in the design its own characteristics without interfering with its architectural purpose.

69
218—10

(a)

(b)

Fig. 33

EXAMPLES

64. Milan Cathedral.—In Northern Italy, Milan Cathedral, Fig. 33 (*a*), erected by the first Duke of Milan, is the most important ecclesiastical structure of the Italian Gothic period, but it is not a characteristic building of the Italian Gothic style. It shows great German influence both in character and details. This structure is the largest of the medieval cathedrals, with the exception of the one at Seville, Spain, and it is built entirely of white marble. The roof is flat and is constructed with massive marble slabs laid over the vaulting. The plan, Fig. 34 (*a*), shows a nave with double aisles and a transept crossing the nave and aisles, above which is erected a marble spire [Figs. 34 (*a*) and 35 (*a*)]. A range of immense shafts extends down the nave, and these shafts support the roof vault and give an imposing effect on the interior, as shown in Fig. 33 (*b*). On the exterior, Fig. 33 (*a*), the whole design is expressive of elaboration and lacelike intricacy, but with so little variety that it soon becomes tiresome.

65. Florence Cathedral.—Florence Cathedral, the plan of which is shown in Fig. 34 (*b*), is more characteristic of the Italian style. Solid walls without buttresses, small openings, and unusually wide spacing of the nave arcades characterize the plan. There is no triforium, and the clearstory consists only of a series of small circular openings, which are placed high in the nave wall, as shown in Fig. 35 (*b*). The aisle windows are small and are placed high above the floor, leaving large wall spaces both outside and inside. The walls are thick and present no buttresses on the exterior, although piers are built against the walls on the interior to receive the vault ribs.

The exterior of this cathedral, Fig. 36, is elaborately paneled in colored marbles, and, though entirely devoid of the characteristic Gothic buttresses and pinnacles, it is wonderfully rich and elaborate in design. The dome is not a part of the original scheme, but was added during the

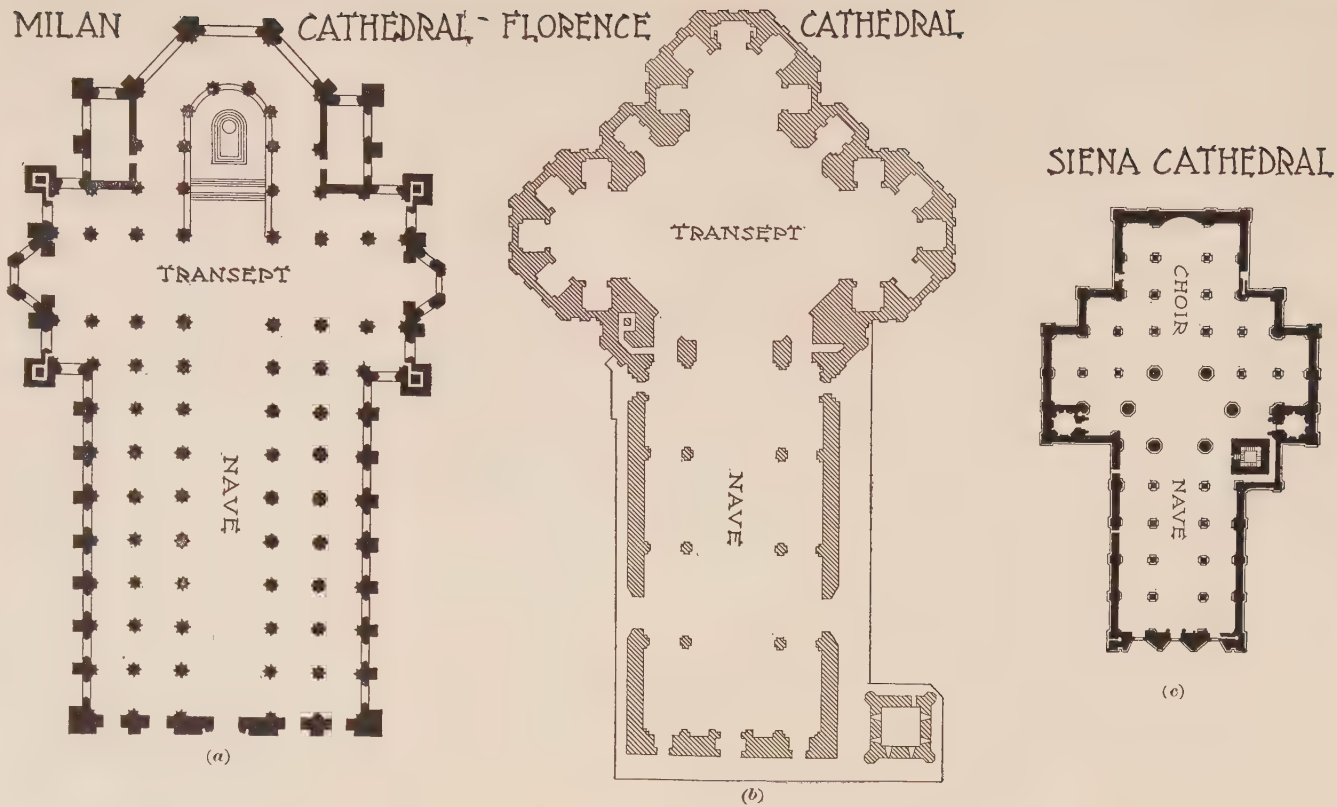
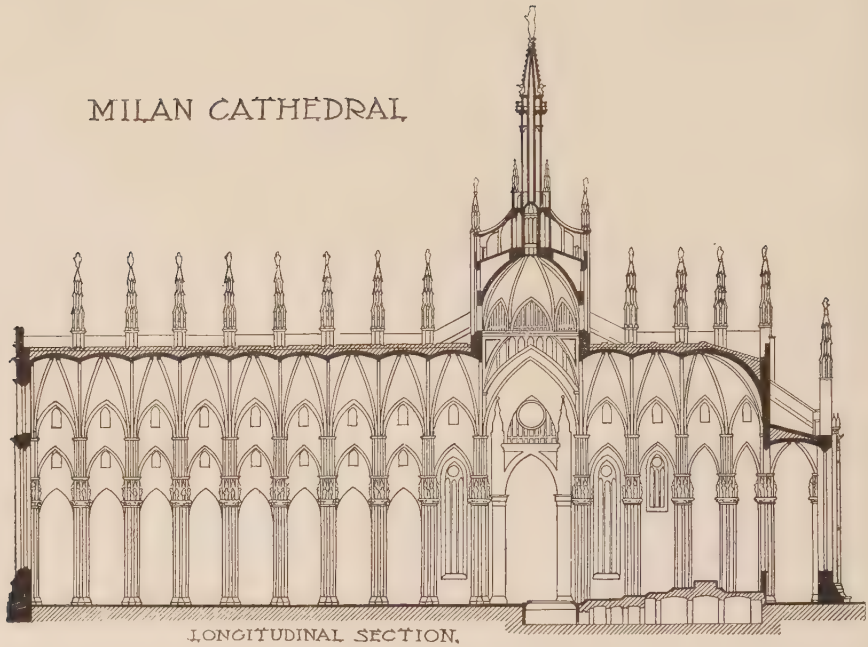

MILAN CATHEDRAL
TRANSEPT
NAVE
(a)
FLORENCE CATHEDRAL
TRANSEPT
NAVE
(b)
SIENA CATHEDRAL
CHOIR
NAVE
(c)

FIG. 34



LONGITUDINAL SECTION.
(*a*)

LONGITUDINAL SECTION.
(*b*)

FIG. 35

Renaissance period, and will be discussed later on. The campanile, or bell tower, adjoining the west front, Fig. 37, is built of red and white marble in four stories, each of which is somewhat higher than the one below, thus producing a feeling of lightness that is augmented by the increased area of the openings in the upper part. The west façade was not completed until the 19th century, but was designed to harmonize with the rest of the building.

Fig. 36

Nothing could show more clearly the vast difference between the characteristics of Gothic architecture of Northern and Western Europe and that of Italy than the façades of the cathedrals. The flying buttresses and elaborately ornamented doorways of France, the wide transepts and long naves of England, and the richly traceried and lacelike spires of Germany are all absent from these Italian compositions, with their symmetrical arrangement of parts and numerous horizontal lines.

66. Siena Cathedral.—Siena Cathedral, whose plan is shown in Fig. 34 (*c*), is another example of wide spacing

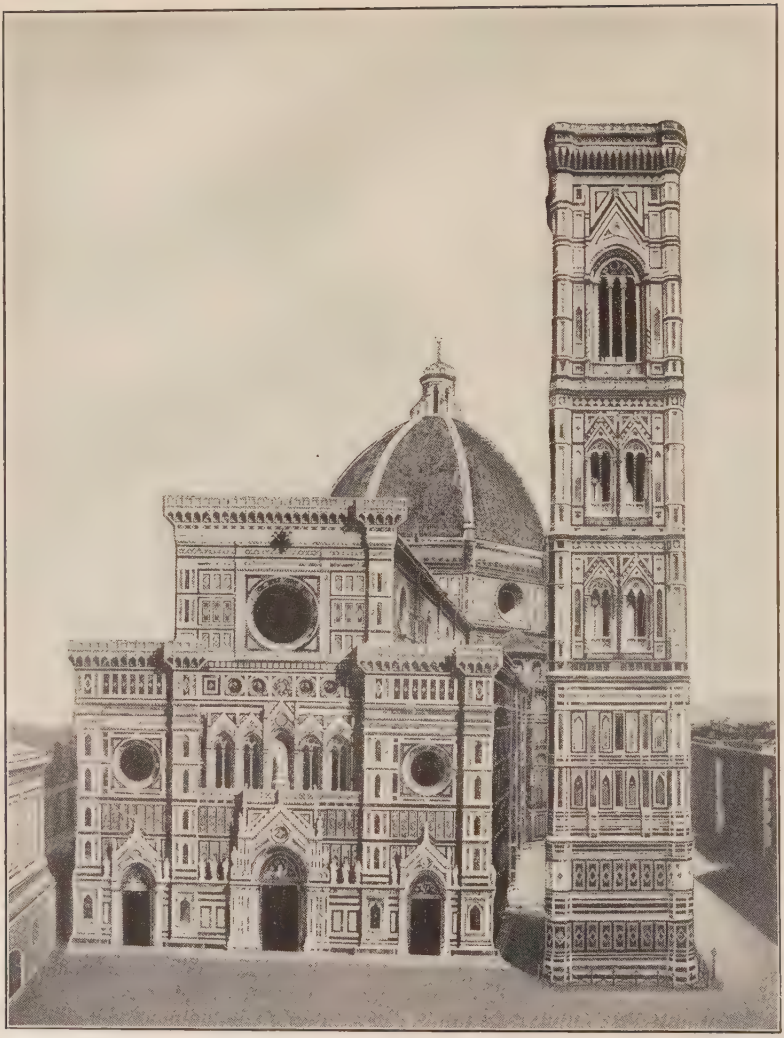


FIG. 37

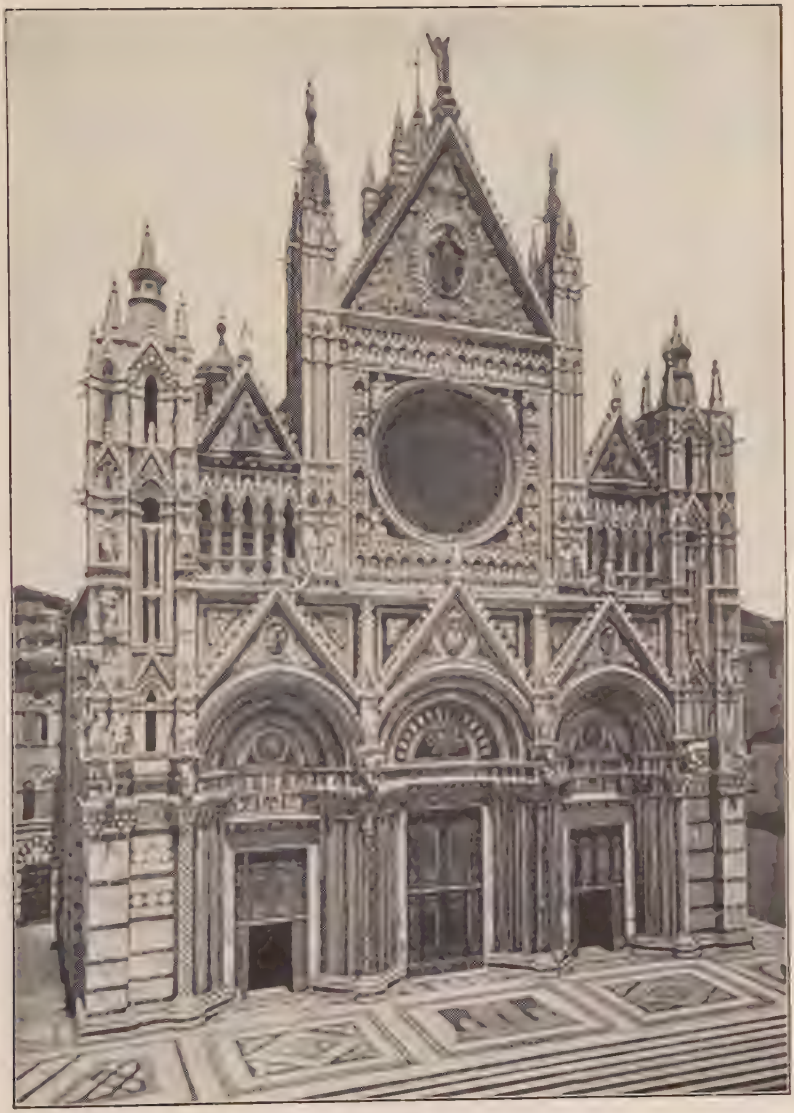


FIG. 38

of the arcades in the nave; but, here, this is not so extreme as at Florence. A remarkable dome is constructed over an irregular hexagon at the crossing, but not in the center of the nave as in other examples. The walls are heavy and only slightly buttressed, and the windows are small and high above the floor. Its western façade, Fig. 38, is elaborately ornamented with tracery and statuary, but is far different from the façades of Western Europe. This structure is built of black and white marble laid in strips to form geometrical patterns, and is pierced by three great portals of equal size and by a rose window. No continuous perpendicular lines occur in this façade, but numerous horizontal elements prevail. The pinnacles on each side of the central gable are not centered over vertical elements in the first story, but over piers that rest on a horizontal string-course across the front. The portal heads are semicircular, instead of pointed, and are included under low gables embellished with crockets.

67. The wide spacing of the nave arcades gives a feeling of largeness and openness that does not exist in edifices in which the columns are more numerous. The interior of St. Croce, Fig. 39, exemplifies this, and at the same time demonstrates the fact that the appearance of great width detracts from the feeling of depth in the nave.

In Southern Italy the plans were based on the Roman basilica type, but the naves have timber roofs of elaborate design, showing Oriental influences. The pointed arch was frequently used, as in the cloisters of the cathedral at Palermo, Fig. 40. These arches, however, were not molded as in Northern and Western Europe, but were elaborated with mosaic and tile. One of the strongest characteristics of these southern churches was the lavish display of mosaic decoration, in which portraits of biblical characters were executed in a crude, archaic style, and surrounded with borders of arabesque designs in gold and color. The lower walls were sheathed with white marble, with bases and borders of green and purple porphyry.

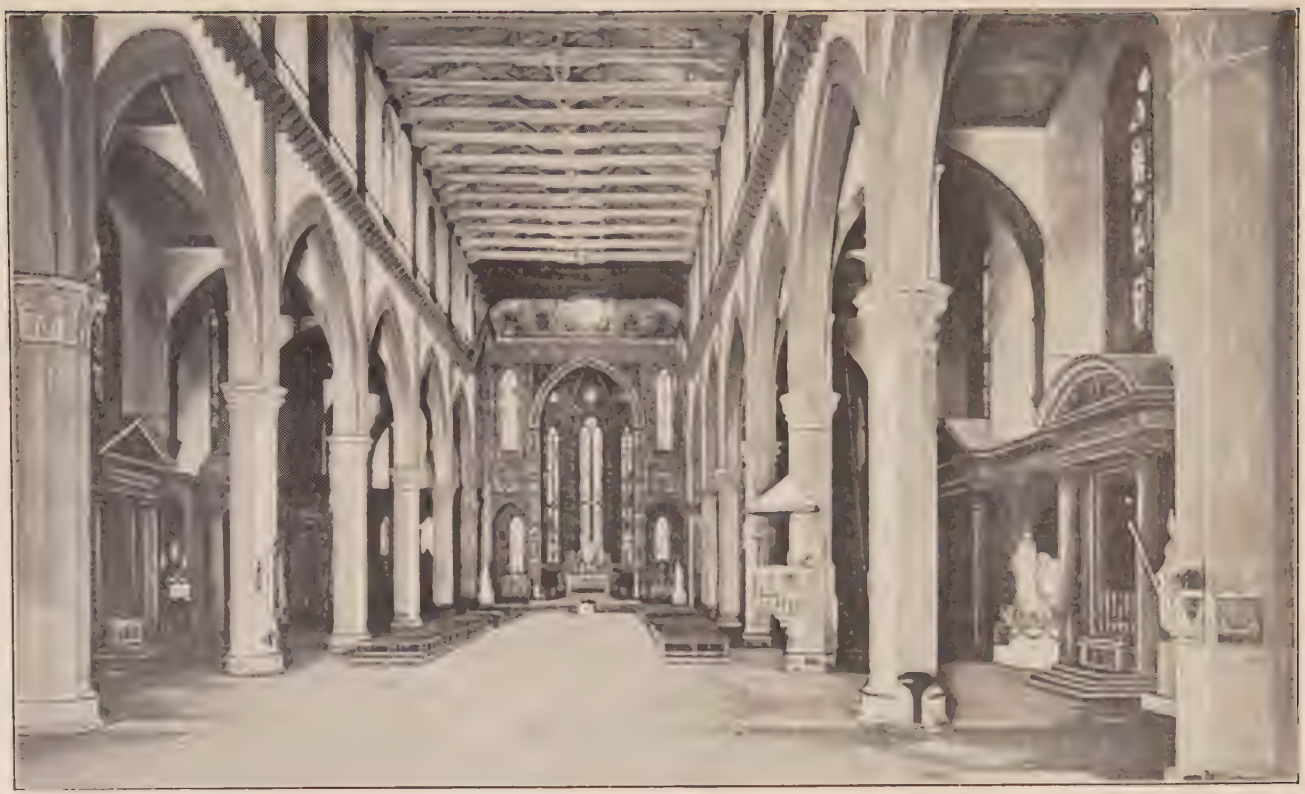


Fig. 39

ANALYTICAL STUDY

PLANS

68. The influence of Roman antecedents is clearly shown in the plans of the Italian Gothic style. Here an endeavor is made to create a great central court in the churches, as at Florence and Siena Cathedrals, Fig. 34 (*b*) and (*c*). The nave bays are usually set out in square compartments, while the aisles are in oblong compartments, thus reversing the practice of Northern Gothic. Externally, a dome is found introduced, as at Siena and Florence, a detail that never appears in Northern Europe.

WALLS

69. The use of small windows set high above the floor leaves vast wall spaces unbroken by buttresses, as these walls were heavy enough to withstand the thrust of the roof members without such assistance. Their omission, however, destroys the tendency to vertical lines in the façades, and a lack of shadow effect results. There is no attempt to emphasize the construction in the decorative treatment of the walls, the façades being treated independently of the roofs and other structural details behind them. Variety in light and shade was attempted by facings of marble in horizontal bands of two colors, in contrast to the Northern Gothic, which attained a light-and-shade effect through the introduction of buttresses and other vertical elements.

On the interior of the cathedrals, the triforium was usually omitted, as at Milan and Florence, Figs. 33 and 35. The clearstory then became little more than a spandrel of the nave vault pierced by a small, and usually circular, window. The arrangement of these arcades, with their widely spaced supports, gave the interior the appearance of a large hall, as in Fig. 39, rather than of a long nave, as in the Northern Gothic.

Fig. 40

ROOFS

70. The structural details of the roof form no part of the design scheme. The roofs are usually low, as the climate does not require a steep pitch, and they are therefore hardly visible from the streets. The end gables, when they exist, are somewhat masked behind high screen walls richly ornamented with tracery or encrusted with marble mosaic.

COLUMNS

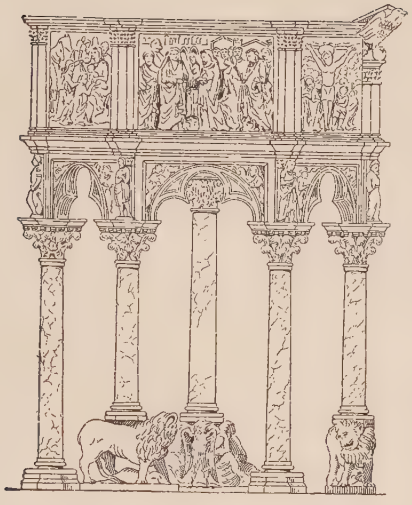
71. The nave piers of the churches are singularly clumsy and inelegant. Square piers composed of four pilasters set back to back are frequently used, as are also heavy round piers with Corinthian capitals and classic bases, recalling Roman influences. These were widely spaced so that the long perspective effect characteristic of the naves in Northern Europe was never attained.

OPENINGS

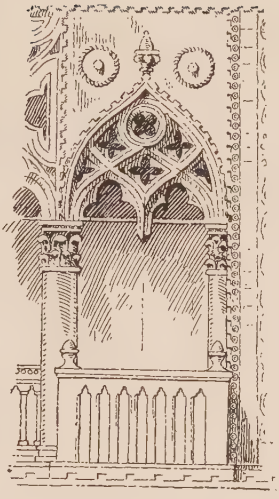
72. The windows are rarely pointed as in the northern cathedrals, because the formation of the vault did not require it. Semicircular heads are more prominent, and some openings are simply closed over with a lintel. When the pointed arch was used, it was frequently designed with a deep-molded keystone, a method borrowed from the semicircular arch of the Romans, but having no real significance in the Gothic style, as with the pointed arch a keystone is not required.

MOLDINGS

73. Roman models were used for the moldings, but with less variety, as colored marbles gave the necessary horizontal elements where required and vertical elements were not in much demand. Molded elements were always subordinate to surface decoration.



(*a*)



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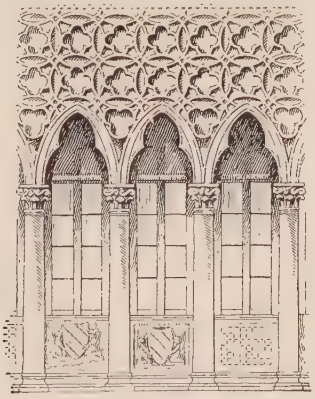

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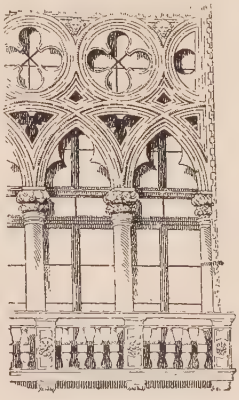

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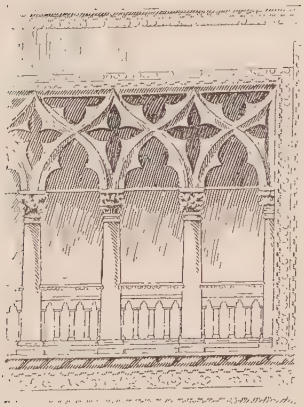

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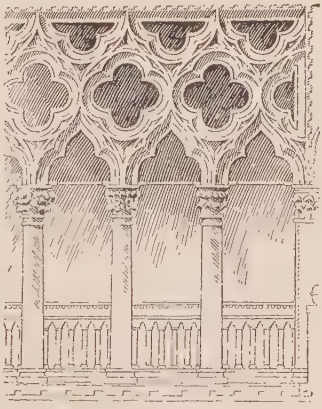


(*f*)

FIG. 41

ORNAMENT

74. During this period, the art of the fresco painter was greatly developed and led to the perfection attained in wall decoration during the succeeding period. Many buildings were erected devoid of all manner of wall treatment, and depended entirely on fresco details for decorative effect. In carved work, the traditions of ancient Rome prevented such extremes of grotesque as characterized Western Europe; but in the execution, more attention was usually given to accessories than to the general design. On the altars, tombs, and pulpits, carving and mosaic work were lavished unstintingly, as shown in Fig. 41 (*a*), and further ornamental work was attained in the colored marble veneers of the façades and the marble mosaic of the pavements. Traceried screens [Fig. 41 (*b*) to (*f*)] were a prominent characteristic of the palaces and other secular buildings (Art. **91**).

This tracery is particularly characteristic of the Venetian Gothic, and though based on no such structural conditions as the tracery work in England, it is delightful in its intricacy of detail. The façades of the palaces of Venice being limited to straight water fronts would necessarily be tame and uninteresting were it not for this local system of design that introduces strong contrasts of light and shadow to relieve the rectangular elevations. Land was too scarce to permit of strong breaks in the façades or the grouping of the masses of a building into principal and subordinate parts. The climatic conditions were not favorable to large openings to relieve the broad frontages, and the narrowness of the canals demanded a treatment that invited close inspection. The elevations were therefore designed to consist of recesses and balconies behind rich traceried screens consisting of the pointed arch between columns, as in Fig. 41 (*b*) and (*c*), or of intersecting semicircular arches extending over alternate columns, as in (*d*). The tracery work sometimes consisted of pointed arches, between which the superimposed wall was pierced with quatrefoils, as at (*e*) and (*f*).

SPANISH GOTHIC

(1230 A. D. to 1450 A. D.)

INFLUENCES

75. Geographical.—Spain, Fig. 42, is a peninsula in the southwestern part of Europe. Mountain ranges divide the country into several sections that were peopled by rival races and were almost constantly at war. Andalusia, until

FIG. 42

the close of the 15th century, was held by the Moors, who were Mohammedans. Their kingdom was surrounded by a wall of mountains and contained a wondrously fertile plain, the finest in the entire country. Andalusia originally

included all of Spain south of the Duero and Ebro Rivers and the Guadarrama Mountains. After the capture of Toledo by the Christians, at the end of the 11th century, the Moors were confined to the extreme southern part of the country.

76. Geological.—Stone was generally employed in Spain, although granite and marble were also used. The Moors used rubble work with brick bonding, and remarkable effects were obtained.

77. Climatic.—The climate of Spain varies materially, according to the elevation. Burgos, in the north, is 3,000 feet above the sea and is exceedingly cold at times, while a portion of the south, particularly along the Mediterranean Coast, is tropical.

78. Religious.—Constant warfare with the Mohammedan Moors effected a feeling of unity between the Christians of Spain, and thus gave the Church great power. The cause of the wars was the hatred toward the Moorish race, as well as the opposition to the Mohammedan religion. It was fortunate for society that the Church had such influence in that barbarous age, for at that time the priest and the monk together established the outward order and the inward life of the world. In fact, they often had greater authority than a chief or a king. The cathedral and the monastery were centers of power for good. There the ignorant were taught, the helpless protected, the poor sheltered, and the starving fed. The monasteries also served as the hotels of the day, and hospitality to travelers was a chief duty. The Church, too, knew no distinction of rank or class. A slave might become a priest, a priest a bishop, a bishop a pope. Especially was this influence of the Church of value when there was no uniform law to supreme civil authority, and when invasions and civil wars were constantly filling the world with violence, bloodshed, and desolation.

79. Political and Historical.—When the Romans left Spain, the Vandals of the African Coast took possession, after which the country was invaded by the Moors of North Africa,

and for 800 years their influence was continuous. Their constructions, which still remain at Cordova and Granada, express the richness of their architecture in an exuberance of intricate detail in which the rich color effect is remarkable.

In *History of Architecture and Ornament*, Part 2, Arts. **36** to **38**, mention has been made of the rise of the Mohammedan tribes and their invasion of Western Europe. The Moors were a branch of these Mohammedan tribes, and although they invaded Southwestern Europe as far as Tours in France, they were driven out by Charles Martel and confined to the Spanish peninsula.

The beginning of the 11th century found the old Mohammedan Dominions in Northern Spain divided into the Christian states of Castile, Leon, Navarre, Aragon, and Portugal, and all these states were united in the endeavor to drive the Mohammedans into Andalusia. The kingdoms of Navarre, established in A. D. 873, Castile 1026, Aragon 1035, Leon 1037, etc., soon united under the banners of Castile and Aragon, while Andalusia was still held by the Moors. After the capture of Toledo (the Moorish capital), in 1084, and the battle of Tolosa, in 1212, the Mohammedan influence gradually declined. Under Ferdinand III, King of Castile and Leon, Seville and Cordova were taken, 1217 to 1252, and Gothic art took root and grew, assisted by the wealth of the conquered Moors. Through the marriage of King Ferdinand, of Aragon, and Queen Isabella, of Castile, all the small kingdoms except Andalusia were united in the single kingdom of Spain. Ferdinand and Isabella, both ardent Christians, commenced a vigorous campaign against the Moors, during which the King and Queen, together with the entire court, moved with the army, thus carrying royal wealth and influence into the southern provinces. In 1491, when Granada, the last stronghold of the Moors, fell into the hands of the Christians, the entire peninsula of Spain came under the rule of a single sovereign.

Joanna, daughter of Ferdinand and Isabella, married Philip, son of Emperor Maximilian, of Germany, in 1496, thus making Spain a part of the great German empire.

CHARACTERISTICS

80. In Southern Spain, Gothic art was always more or less under Moorish influence. The early churches of the Spanish conquerors seem to have been executed entirely in Moorish art. This influence is expressed in the introduction of Mohammedan details, such as the horseshoe arch and the pierced tracery of Moorish design. The window openings are entirely filled by intricate fretwork screens, which are rich in detail and elaborate in design. In other places, Gothic buildings are decorated with intricate geometrical surface ornament, in which foliated forms are introduced, thus distinguishing them from the Moorish designs in which no animal or vegetable forms were used. The Gothic style was best developed in the extreme north, where French influences were felt.

Leon Cathedral was modeled after Amiens, but exceeds it in the expanse of window openings. Broad surfaces and horizontal lines, derived from Roman influences, characterize Spanish art the same as they did Italian art, but the clear-stories in many of the Spanish cathedrals are characteristic features.

The average inhabitant of Spain was indifferent to plastic art, the national artistic talents being limited to music. It mattered little to him whether his church was Gothic or Romanesque, so long as it was dedicated to his favorite saint. Spain developed no architecture of its own. All is borrowed. Byzantine grotesque and Moorish arabesque are inherited from the Goths of the North and the Moors of the South. The magnificence displayed in the cathedral interiors is due to the Oriental spirit that still throbbed in the veins of the country, as the Moors inhabited Southern Spain for 800 years.

87

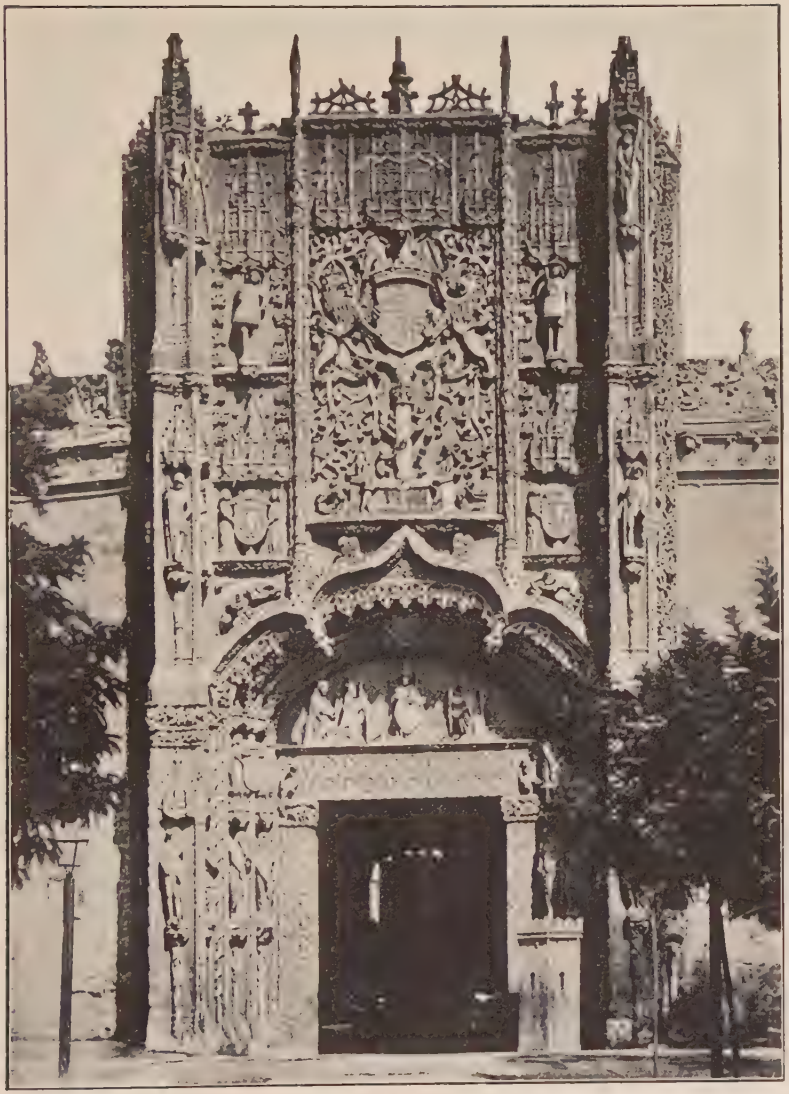
FIG. 43

EXAMPLES

81. Burgos Cathedral.—Burgos Cathedral was built at the instance of an English bishop and had a French model as its prototype. The former influence may account for the magnificent lantern at the crossing, while the latter may have governed the plan. The plan presents a Latin cross with nave, aisles, and transepts, but owing to additions on all sides, except the west front, the plan has become very irregular and unsymmetrical. The original transepts projected only slightly, and the aisle was carried around the east end, forming a chevet. Beyond the chevet, chapels were arranged that materially affected the exterior design.

The interior of this cathedral, Fig. 43, is a view down the transept toward the south end, and shows the massive piers that support the great octagonal lantern over the crossing. The florid ornament, the richly carved canopies containing effigies of the saints, and the intricate traceries are all characteristic of the Spanish Gothic. The effect of the lantern itself is somewhat like a tall dome whose walls, supported on pendentives, are pierced by lancet windows and entirely covered with an intricate arrangement of sculptured arabesques, statues, ribs, and small columns. The ornamentation is as crowded as the leaves of a tree, and though the structure is gigantic in its proportions, it is as delicate as a piece of filigree.

82. Cathedral of St. Gregorio.—The entrance to St. Gregorio Cathedral, at Valladolid, shows the effect of Moorish influence on Spanish design. The decorative detail, as in all Spanish examples, is elaborate and minute, the carving being extremely lacelike in its delicacy; but there is no suggestion of structural conditions—no architectural significance of the ornamental details. The portal shown in Fig. 44 is an example of florid Gothic ornament, rather than of Gothic architecture. Strip the ornament from this edifice and the architectural condition would remain unchanged. Yet, withal, the effect commands admiration



89

FIG. 44

by its beautiful intricacy and the patient devotion of the sculptor to the glorification of his religious ideas. Here, ostentatious display of details contrasts with the devoted simplicity of the Northern Gothic, but both are the outward expression of the same sentiment from two widely different races of people.

83. Segovia Cathedral.—Segovia Cathedral, Fig. 45, although erected in the early part of the 16th century, adopted the wide nave and the semicircular chevet of French origin. The nave demands strong buttresses to withstand the thrust, while the chevet introduces that characteristic east end with radiating flying buttresses, as in the French cathedrals. There is more structural detail and less intricate ornamentation on the exterior of the Segovia Cathedral than in many other Spanish examples, and therefore more Gothic feeling, although the construction dates from the Early Renaissance period. The hemispherical dome over the square tower at the crossing and the dome over the western tower are in no way harmonious with Northern Gothic ideas, but the strongly marked buttresses with paneled sides and numerous vertical elements are similar to later Gothic treatment in other parts of Europe. Such is the case with nearly all examples of Spanish Gothic architecture. The style does not possess sufficient originality to be national in development, nor has it borrowed sufficiently from any source to be classed entirely with any foreign development. The Moorish surroundings affected much of the detail in some localities, while in others the cathedrals were built on the sites of ruined Mohammedan mosques. Such was the case with the Cathedral of Seville, which is the largest medieval cathedral in Europe. It bears some resemblance to Milan Cathedral, but its exterior is not pleasing and its skyline is monotonous. Its plan includes a nave and double aisles with side chapels as in other cathedrals, but its proportions have no precedent in Christian architecture, as it was built to fit the space occupied by the previous mosque.

FIG. 45

ANALYTICAL STUDY

PLANS

84. The plans of the Spanish cathedrals are wide in comparison with the length. The choir is usually west of the crossing. The dome over the crossing is similar in treatment to examples found in Southern France. Traceried, open spires surmount the towers at the west end, similar to these details in Germany.

WALLS

85. The walls present an inclination toward French ideas, and in late examples, extreme florid ornamentation characterizes their treatment.

ROOFS

86. The roofs were vaulted, but vaults were developed in decorative rather than in constructive features. The traceries, bosses, and vault ribs are rich in effect, although the composition and design cannot compare with the English vaulting in interest.

COLUMNS

87. The lantern at the crossing emphasized the central piers, as at Burgos, where they are circular in plan and very massive. The columns, in Seville Cathedral, were great piers for supporting the arcades, and the carved capitals, in characteristic form, were introduced in pairs.

OPENINGS

88. The openings were large and numerous, and the triforium was sometimes glazed, as was also a part of the wall surface of the clearstory. Stained glass was extensively used.

MOLDINGS

89. Spanish moldings were based on French ideas with the introduction of local motifs. They are lacking in refinement of conception, as are all details of Spanish architecture. In a few isolated cases, the moldings are well chosen and well placed, but these are exceptions, and are in no way characteristic of the Spanish style.

ORNAMENT

90. In the Spanish churches, the reredos, or screen behind the altar, was richly ornamented, being often as wide as the nave and reaching to the vaulting. It was usually constructed of stone, and was treated with canopies and niches containing figures, elaborate paneling being placed between. The painting was naturalistic, and the gilding was applied so solidly as to give the effect of real metal. Much sculpture, frequently life-sized figures, was introduced, and stained glass, heavy in style and gaudy in colors, and elaborate grilles in hammered and chiseled iron bars relieved by figures beaten in repoussé were also employed. These iron grilles, called *rejas*, form one of the most characteristic details of the Spanish style.

On the exterior, numerous sculptured figures were introduced, and these were intermingled with heraldic devices and running ornament until the panels of the walls were completely filled with decorative treatment. An excellent example of this is shown in the door of Valladolid Cathedral, Fig. 44.

A characteristic of Spanish art is the demand for realism, no matter how inappropriate it may be. Simple sculpture is not sufficient, and as a result the statues are colored and frequently dressed in real clothes. As a result of this tendency, many of the sculptured figures of Spain look like waxwork, and the skill of the plastic artist is hidden beneath the draperies.

REVIEW EXERCISES

1. Describe the contrasting characteristics of the French and English cathedral plans and state why the general system of planning is less uniform in France than in England.

2. (*a*) What characteristics of the cathedral interiors is peculiar to France more than any other country? (*b*) What contrasting characteristics distinguish the interior effects of French and English cathedrals?

3. (*a*) Why are flying buttresses more prominent in France than in England? and (*b*) wall buttresses more prominent in England than in France?

4. What are the contrasting characteristics of French and English cathedral roofs?

5. What are the contrasting characteristics of French and English (*a*) nave columns? (*b*) doorways? (*c*) window tracery?

6. What are the characteristic Gothic structures in the Netherlands?

7. What peculiarity concerning the entrances of German cathedrals are characteristic of that country?

8. What (*a*) climatic; (*b*) geological; (*c*) religious; (*d*) political influences affected the character of Italian Gothic architecture?

9. (*a*) What are the characteristics of Italian Gothic architecture? (*b*) What are the contrasting characteristics of Italian Gothic and other Gothic cathedral plans?

10. In what way does the roofing system affect the Italian Gothic style?

11. (*a*) What part of Spain was occupied by the Moors up to the end of the XI century? (*b*) What are the natural boundaries of this section?

12. What foreign influences affected the Spanish Gothic style?

SECULAR ARCHITECTURE

INTRODUCTION

91. As cathedrals were the first important structures of the middle ages, during which Gothic construction and ornamentation were developed, the studies thus far have been confined to the development of the Gothic system in these buildings. As a matter of fact, however, every building that was erected in Western Europe throughout the 13th and 14th centuries was in the Gothic style. Among these were the feudal castles, which were first erected as fortresses and afterwards developed into residences, and the great gildhalls and municipal buildings erected by the craftsmen and citizens of the growing municipalities. The architecture of these buildings varied in different localities, just as that of the cathedrals did, but their importance architecturally is increased by their consideration as monuments of utility designed to suit the demands of different purposes. All cathedrals were erected for one purpose, and all cathedral plans presented the same general arrangement. Moreover, these plans are the one detail that did not originate in the Gothic or the Romanesque style. The nave, aisles, transepts, and choir are all inheritances from the old Roman basilica.

Cathedral building was progressive, but wholly in a structural sense. The problem in all countries was practically the same: To cover with a stone roof a long narrow plan and to do this with the greatest economy of material. The feudal-castle plan, however, was always irregular to conform it to the hill on which it was built; and economy of material was impractical, as the defensive walls must needs be of immense thickness. Planning and construction, therefore, developed along different lines in these secular buildings.

MILITARY AND DOMESTIC ARCHITECTURE

92. The castles and residences of the nobles formed an important part of the architecture of the middle ages, and established details and peculiarities of plan that reflected the social conditions of the times and that have been retained in a more or less modified form down to the present day. (See *History of Architecture and Ornament*, Part 2, Arts. **45** to **47**.) Though these castles were primarily military posts, they were at the same time the official residences of the lords or barons that governed the fiefs, and while they were built in accordance with the medieval ideas of defense, their planning is expressive of the feudal relation of the vassal to his lord, who exacted the vassal's services and therefore maintained him.

93. In the 12th century, the principal features of the castles consisted of a large outer court, or *bailey*, containing the stables and storehouses, and an inner court. This court was either partly or entirely surrounded by the various apartments of the castle, Fig. 46, all of which was surrounded by a high wall with a parapet and ramparts at the top, while a deep, water-filled moat, or ditch, surrounded the base. The moat was crossed by a drawbridge that could be raised when not in use, and the entrance to the courts was effected through a fortified gateway, which was protected when closed by a huge iron gate, or *portcullis* that could be raised and lowered in grooves like a window sash [see Fig. 59 (*b*)].

The castle proper surrounding the inner bailey consisted of a number of apartments. The principal one was known as the *great hall*, which was the main living room of the castle, where all meals were served, where all business was transacted, and where such amusements and pastimes as the age afforded were indulged in. The keep, or *donjon*, a fortified tower several stories in height, was entirely surrounded by a water-filled moat. This tower was the final place of refuge in time of siege and the last point of defense when

WING OF FRANCIS 1st.
REBUILT IN XVI CENTURY.
GREAT HALL
XIII CENTURY
COURT
CHAPEL
PLAN OF THE
CHATEAU AT BLOIS
(b)
COURT
CHAPEL
DONJON
GREAT HALL
PLAN OF THE
CASTLE OF COUCY.
(a)

FIG. 46

all other towers surrendered. Around the outside of the keep, supported on projecting corbels, was a parapet wall, the floor behind which was pierced between the supporting corbels with openings, through which the besieged could either shoot, or pour boiling oil, molten lead, etc. on the besiegers below. These openings, called *machicolations*, were a characteristic detail of the towers of every feudal residence.

In the earliest days, the castle was heated by means of an immense fire-grate located in the center of the room, the smoke from which passed through openings in the roof, called *louvers*. In the 13th century, however, fireplaces were erected at the sides or ends of the rooms, and the smoke was carried off by means of chimneys.

94. In the 14th century, the great hall was divided into two apartments, one of which was known as the *withdrawing room*, where the lord and his family could retire after meals, but the hall was still retained for business and dining purposes. Sleeping rooms, when introduced, were often dark, cheerless apartments, and were designated by the term *chamber*, a word derived from the Latin, meaning a dark vault.

With the growth of the royal power, the fortifications became a less prominent feature, as the danger of petty wars between the nobles was decreased. In the 15th century, the plans of the castles became more regular, generally rectangular in outline, but they still retained the inner bailey, or court, as in Fig. 46 (*b*). These details developed differently in different countries, but the general characteristics prevailed throughout.

95. The early castles were usually located on the top of a hill, with the ground sloping away from all sides but one, and on this one side was the principal entrance. On the lower slopes of the hill was the town, or *cité*, as it was called, where the vassals of the nobleman grew their vines and plied their trades; but they held their various pieces of land subject to the rule and under the tenure or lease of the lord of the castle. Frequently, the cité itself was surrounded by a fortified wall, and the castle was erected as a stronghold

within. The lord, in his turn, held his estate, or fief, subject to some higher political power, as a duke, or even the king, and his failure to comply with the demands of his superior would usually bring down a war upon his shoulders and necessitate the calling of all his vassals to the defense of the castle. These petty wars were frequent and generally resulted either in the partial demolition of the castle or in its entire subjugation and the passing of the fief into the hands of the enemy.

In either case, the vassals were compelled to assist in the repair of the damaged castle walls. Each time this rebuilding became necessary, some more or less important change would be made in the construction, owing to experience gained with each war. Consequently, the architecture of these castles was rapidly progressive, until the use of gunpowder in warfare rendered the castle system of defense practically useless. None the less, the castle was the earliest form of nobleman's residence, and therefore the prototype of the modern mansion. Long after fortified residences became obsolete, the castellated form was used even for a city residence, and as late as the middle of the 15th century many prominent features of both plan and elevation strongly resembled those of the days of the feudal system.

This was in many cases due to the fact that a more modern building was erected over the foundations of the old feudal residence. The plan of the Château at Blois, Fig. 46 (*b*), was necessarily irregular on account of the site on which the castle was erected, and this irregularity was retained when in the 14th, 15th, and 16th centuries the three wings were successively rebuilt on the foundations of the older edifice. Other castles were not even rebuilt, but were simply remodeled within the old walls, thus retaining many characteristic features that advancement in domestic conditions had rendered obsolete.

The following examples have been selected as illustrating the characteristics of the Gothic style of residence, but several of them were erected after the Gothic style had been superseded by the Renaissance.

EXAMPLES

CASTLES AND CHÂTEAUX

96. Bodiam Castle.—In Fig. 47 (*a*) is shown Bodiam Castle, in England, with its surrounding moat. The square tower was used more in England than on the Continent. The walls were usually crowned with the indented parapet all around, while the machicolations were generally confined to the towers. The openings in the walls were simply narrow slits through which bolts and arrows could be fired from bow guns and arbalests, but were too small to serve as targets for the besiegers.

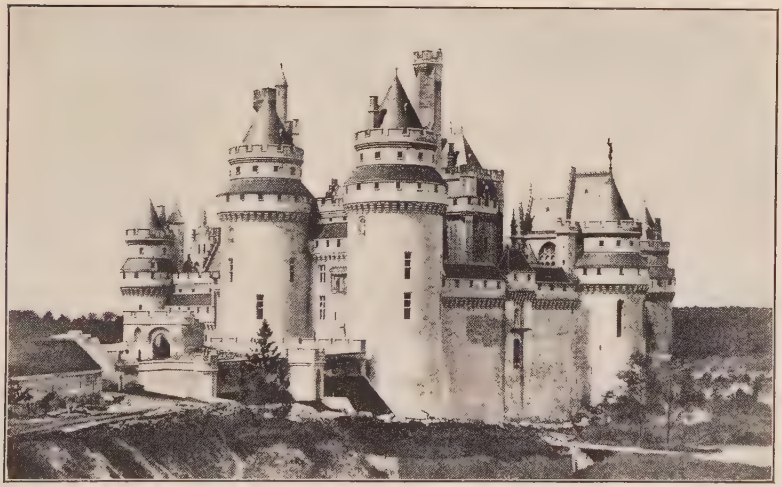
97. Château Pierrefonds.—The Château Pierrefonds, in France, Fig. 47 (*b*), presents the typical French form of structure, although the large windows are of a later date. The circular towers at the angles and the machicolations around them and along the curtain walls may be found in nearly all the châteaux of feudal France.

As the middle-age nobleman began to take more interest in domestic architecture and details of planning were introduced that tended toward greater domestic comfort, he remodeled his feudal stronghold to suit the new conditions, and the result is seen in the irregular and picturesque Gothic château. The architectural development of the fortress châteaux during the Gothic period shows a growing beauty and richness of both form and detail. Luxurious Gothic ornament was lavished on halls and interior courts; also, dormers, pinnacles, and grotesques were numerous on the exterior, and produced the picturesque broken sky line that was characteristic of all Gothic work.

There were many of these magnificent structures in France, but the majority of the most important ones have been either destroyed or entirely remodeled. Château Pierrefonds probably presents the best of the early examples.

The date of the earliest construction at Pierrefonds is lost in obscurity, but there is a record of its having been

(*a*)



(*b*)

FIG. 47

reconstructed, and that it was an unpretentious structure when it came into the hands of the king, about 1185 A. D. Louis of Orleans received it from his brother, Charles VI, and began to remodel it in 1398. Feudalism at that time was still a power in Europe, and Pierrefonds as it stood when finished, in 1406, was a thoroughly medieval fortress, built at the time when Gothic architecture had reached its greatest degree of perfection.

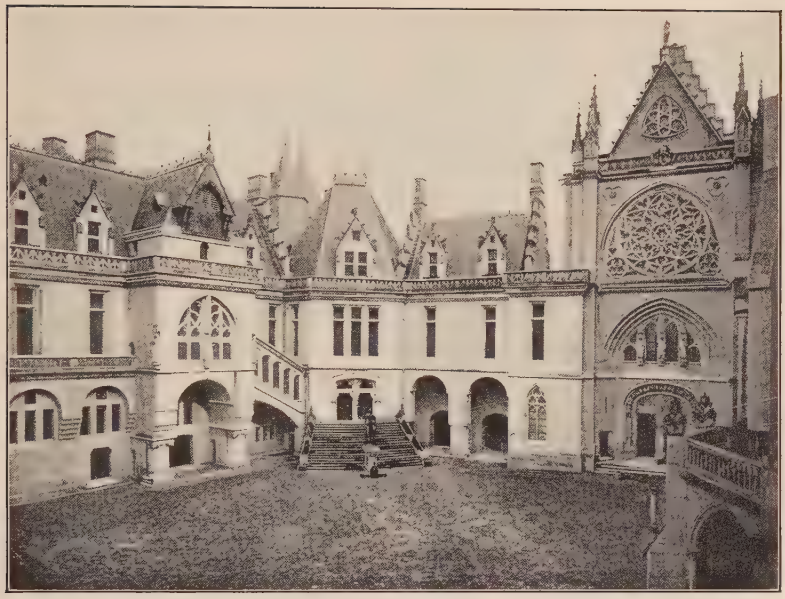
98. The plan included the characteristic inner court, upon which the principal living apartments opened. The exterior walls were plain, and presented few openings. They were of enormous thickness and were protected by eight massive circular towers, which were crowned with conical roofs.

The towers and walls were both machicolated and battlemented, with loopholes between the embrasures of the battlements. The main entrance was protected by a moat and a walled court and was closed by a portcullis. All the walls, except the court, rise from the edge of a steep bluff.

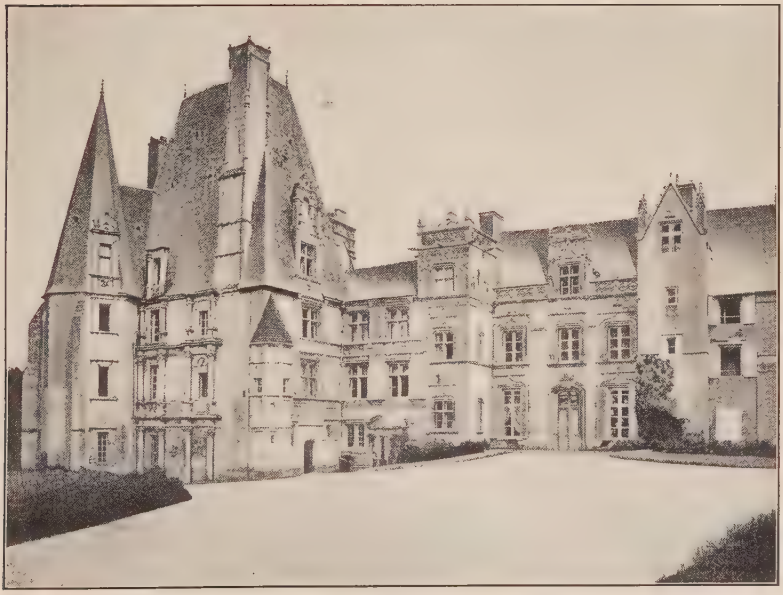
The façades on the quadrangular inner court are less military in appearance. The windows here are larger, and traceries and foliations are prominent in their design, as shown in Fig. 48 (*a*). Numerous dormer-windows are surmounted by crocketed gables and finials, and a traceried balustrade stands above the cornice. These, with grotesque gargoyles, heraldic animals, and richly carved moldings, combine to produce a most imposing architectural composition.

In front of the main staircase is a bronze equestrian statue of the founder, the Duke of Orleans, and opposite, on the right, is the entrance to the chapel, with an elaborate rose window over the door. The inner court, from which a grand stairway usually leads to the several floors, became characteristic of French châteaux, and later governed much of the domestic architecture throughout France.

99. As the style advanced, the soaring character of the Gothic structures became more marked, and high-pitched roofs with elaborately gabled dormers were introduced.



(*a*)



(*b*)

FIG. 48

The elevations became more symmetrical and the windows were arranged with more regularity, as shown on the inner court of the Château Fontaine Henri, Fig. 48 (*b*).

100. Hoensarzburg Castle.—The castle of Hoensarzburg, in Germany, Fig. 49 (*a*), shows the elevated position chosen for these edifices in order that they could command an extensive view of the surrounding country and thus guard against a surprise attack.

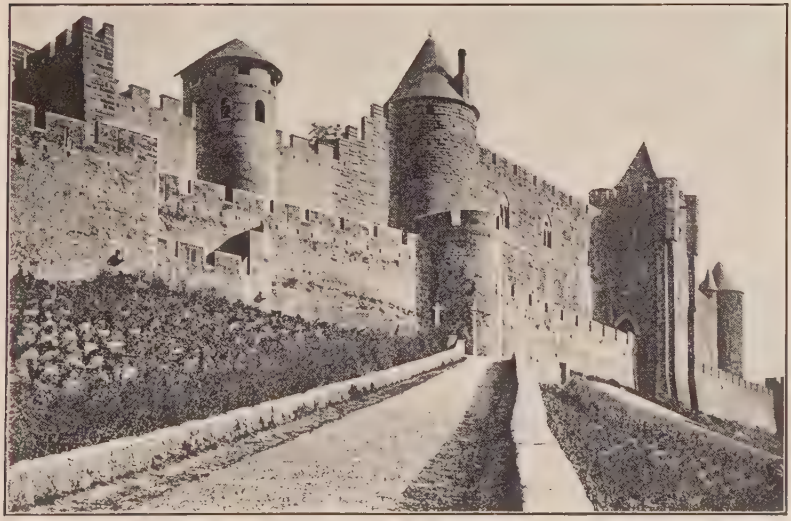
101. Fortified City of Carcassonne.—Among the fortified cities, Carcassonne, in France, Fig. 49 (*b*), presents about the only example now in existence. It has a double line of fortifications composed of fifty towers with curtain walls between, and a dominating citadel within. These fortifications date back to the 5th century, but were frequently altered or reconstructed up to the 14th century. After that they were allowed to fall into ruin until the middle of the 19th century, when they were restored as nearly as possible to their original form by the French government architect.

This class of Gothic architecture has been borrowed in modern design for armories and government buildings, forming parts of plans of defense.

102. Château at Blois.—The most celebrated of these châteaux is the one at Blois, France, not only on account of its historical associations, but also on account of its architectural development. Blois never was of much importance until 1498, when Louis XII, who was born there, became king of France. Blois then became a royal château. Louis XII, in the early part of his reign, rebuilt a portion of it, and the wing bearing his name, Fig. 50, presents one of the daintiest compositions in Gothic domestic architecture.

This château was built around the characteristic inner court, and faced on a large, open, outer court, as it was erected on the lines of an old feudal castle. The façade on the outer court, Fig. 50, consists of two stories, black and red brick being arranged to form a checker pattern. The windows are trimmed with light stone, which is laid with

(*a*)



(*b*)

FIG. 49

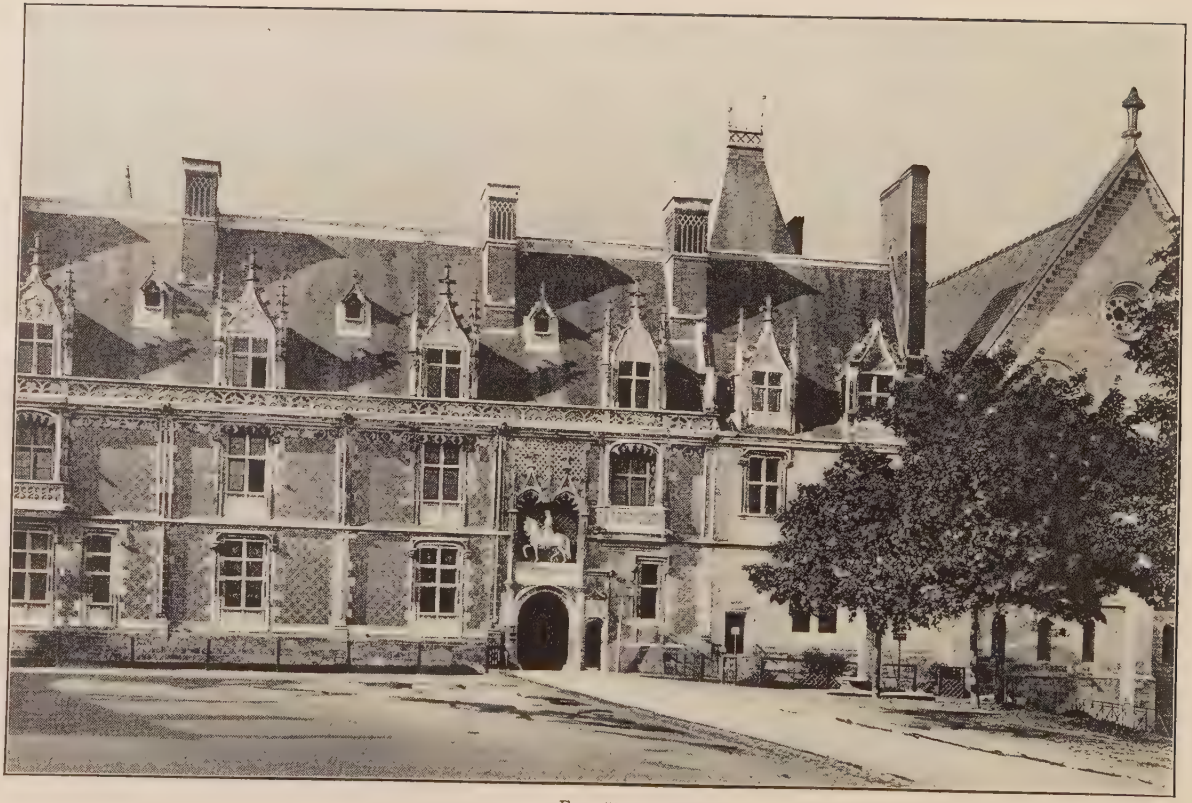
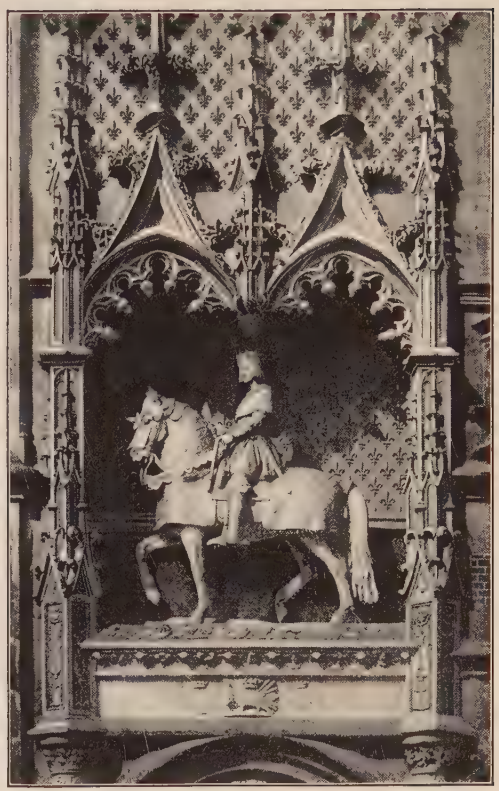


Fig. 50

(*a*)



(*b*)

FIG. 52

characteristic Gothic indifference as to uniformity of size or thickness. Some of these stones extend into the brickwork the length of three bricks, while others are toothed in only one brick length. The effect of this may be more clearly seen in the colored detail of the inner court elevation, Fig. 51. The contrast of color between the red brick and buff stone is here evident, and the detail of the dormers may be more closely studied.

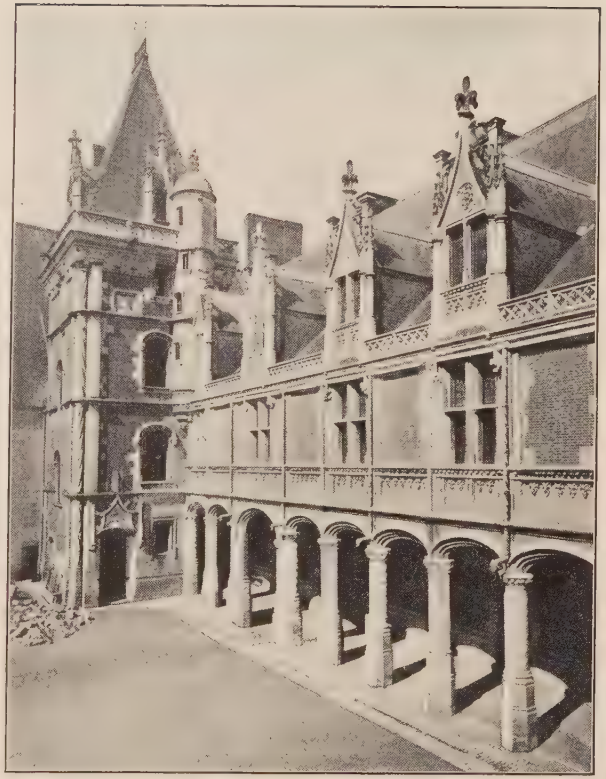
The entrance is composed entirely of stone, which flanks it on both sides in richly diapered columns, as in Fig. 52 (*a*). These columns support the base of a canopied niche, which contains a statue of Louis XII on his charger, as shown in Fig. 52 (*b*). The background of the niche was painted blue and on it the fleur-de-lis was contrasted in gold. Beneath is the crowned porcupine, the adopted emblem of Louis XII, and the crowned initials of the king and of Anne of Brittany, his queen. To the right of the main entrance is a little sally port for pedestrians, and over this a balcony projects in front of a recessed window. The roof is high and is covered with purple slate, while studied dormer-windows center over the windows below.

It will be observed that the only attempt at regularity in the entire elevation is in the arrangement of the windows to form a series of perpendicular lines. The entrance with its sally port at the side and the balcony above are all unsymmetrical, and the extension of the wall to the north is of different material, having been built a long time previous, during the 13th century.

103. The façade on the inner court, Fig. 53, shows a similar arrangement of windows and dormers in the second story and roof, but the first story consists of an arcade supported on piers that are alternately square and round in plan, as shown in Fig. 54 (*a*). These piers, like the columns that flank the door on the outer court, are richly ornamented with carved diaper work on the round piers and long, carved panels on the square ones, the latter being suggestive of the coming Renaissance. At each end at the

Fig. 51 § 51

FIG. 53



(*a*)

(*b*)

FIG. 54

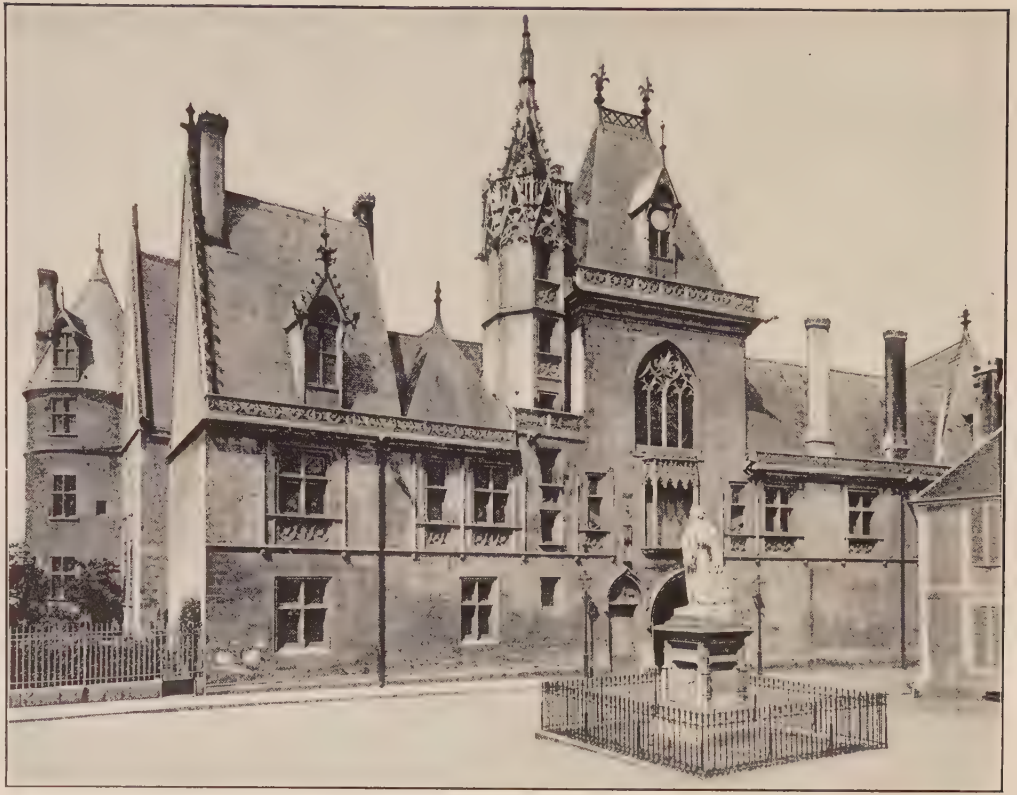


Fig. 55

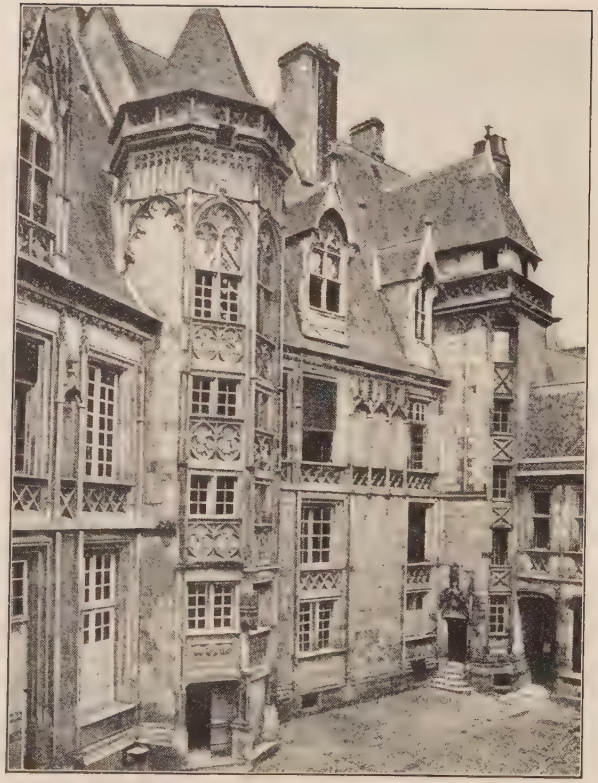
arcade stands a square pavilion, within which a staircase leads to the upper stories. The arcade continues beyond the south pavilion and supports a low second story adjacent to the chapel, as shown in Fig. 54 (*b*). The chapel is a dainty structure, with an entrance at the southwest end, over which are carved in the soft stone, shields bearing the fleur-de-lis of the French king and the ermine of Anne of Brittany.

104. Private Châteaux.—Among the châteaux that were erected by private citizens, that of Jacques Cœur, at Bourges, Fig. 55, is a fine example. The street front presents a central pavilion, in which a large entrance, flanked by a smaller one, is inserted, as at Blois, and over it is a canopied niche to receive a statue. This form of entrance was followed in many of the constructions of this period, many of them being even more elaborate than the one at Blois, as was the case of the entrance to the château of the dukes of Lorraine, at Nancy, Fig. 56.

On the inner-court side, the house of Jacques Cœur presented a central tower, within which a staircase wound to the upper apartments, as shown in Fig. 57 (*a*). This tower was octagonal in plan, and at the angles were slightly projecting buttresses that carried the vaulting under the stairs. It will be well to note these buttresses carefully, and also the canopy on the face of the central buttress, as these are details that reappear in a later structure of importance. The difference in the level of the windows on each side of this buttress is caused by the winding stairs, and as the windows on the right are lower, they indicate that the stairs ascend from that side. The floor levels on opposite sides of the stairs are also different, there being three tiers of windows on one side and only one on the other. This arrangement further indicates the Gothic indifference to symmetry.

The central tower containing the stairs was a conspicuous feature of the French châteaux, another one at Bourges, the Château de Meillant, Fig. 57 (*b*), possessing a most elaborate example, on each side of which the stories continue at the same level.

FIG. 56

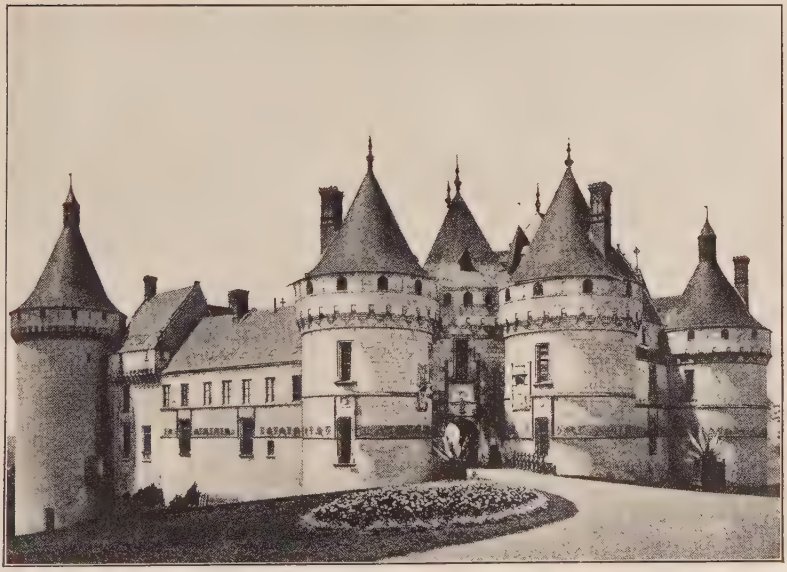


(*a*)

(*b*)

FIG. 57

(*a*)



(*b*)

FIG. 58

105. Among the private châteaux is Château de Nacqueville, shown in Fig. 58 (*a*). The residence portion of this building has been remodeled, and the old moat in front of the main terrace is now converted into a lily pond. The old entrance to the inner court, with its drawbridge and portcullis, Fig. 59 (*a*), still stands, however, and serves as a grim reminder of the good old days "when knights were bold."

106. Chaumont Château.—The château of Chaumont, Fig. 58 (*b*), designed by Philipe de l'Orme, occupies a bluff overlooking the river Loire and is most picturesque when viewed from the valley below. The situation is ideal for an edifice of this character, as its elevated position is most suitable for this style of architecture.

The early history of Chaumont is a varied one, as it frequently changed hands not only among French masters, but among foreigners also. In 1169, it was held by the English. Nothing of importance concerning Chaumont is recorded until the 15th century, when it was destroyed by Louis XI and rebuilt by the duke of Amboise. Chaumont is less fortresslike in appearance than Pierrefonds, but it does not present the horizontal lines and strong classic details that mark later structures. It would therefore appear to have been erected earlier than the châteaux at Chenouceau and Blois, although de l'Orme was state architect under Henry II.

The ground plan of Chaumont is fundamentally that of a medieval fortress. Almost as irregular as the castle of Coucy, Fig. 46 (*a*), it spreads out fan-shaped, with the entrance at the narrow end and a round tower at each angle, while its broad side overlooks the river. The sides enclose an irregular court, upon which the windows of the principal apartments open, as in Pierrefonds, Fig. 48 (*a*).

There is an overhanging battlemented gallery running entirely around the outer wall of Chaumont, but it is roofed over, making a continuous covered passage. The main roofs are steep and the tower roofs are pointed like a candle extinguisher, thus producing an irregular sky line that strongly assists its Gothic feeling.

(*a*) (*b*)

FIG. 59

About the middle of the 16th century, Chaumont was purchased by Catherine de Medici, who owned it for 9 years. After that it was sold and resold many times, until in the 18th century, it was bought by a Mr. Leray, who turned it

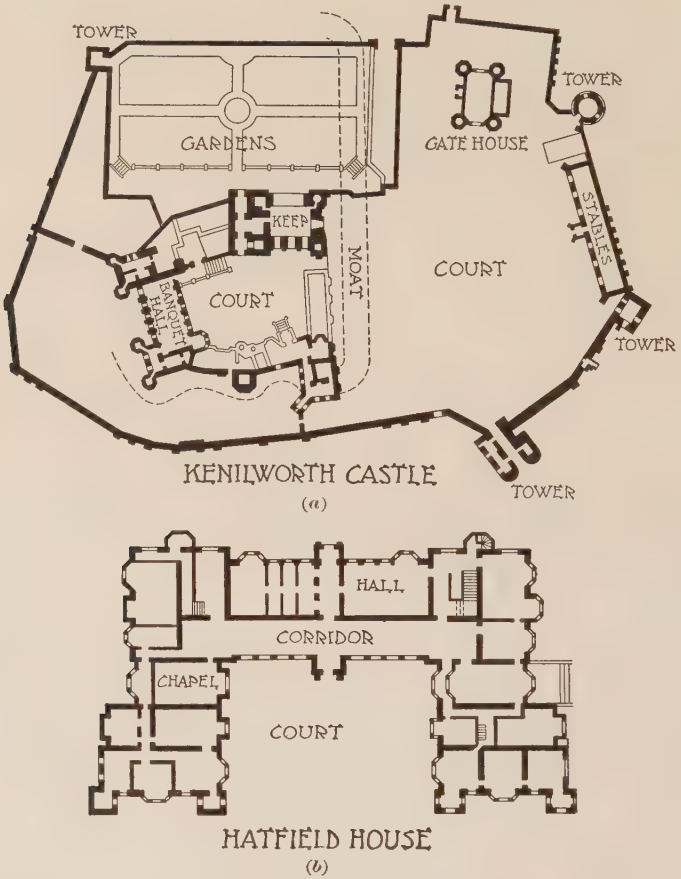


Fig. 60

into a tile factory. The fact that this château was used for such a purpose saved it from the depredations of the revolution, in 1793, when other châteaux were either burned or razed by the revolutionists. Chaumont had so long been a tile factory, that it was not considered a royal possession.

(*a*)

(*b*)

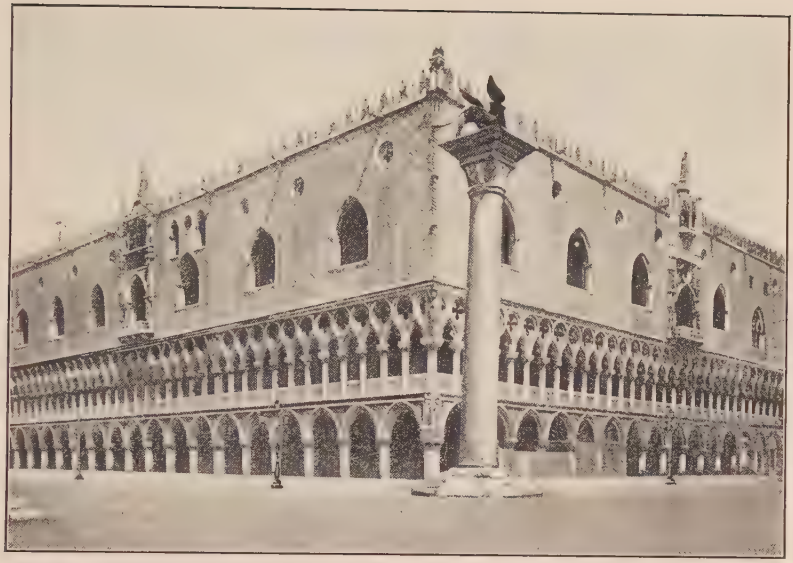
FIG. 61

107. Kenilworth Castle.—Although over a thousand fortified residences were erected in England during the 11th century, comparatively few are known at the present day. Some, being a menace to royal power, have been destroyed, while others have been modernized and still serve as residences. Probably the most renowned of these feudal castles is Kenilworth, made immortal by Scott's historical novel of that name. Its plan, Fig. 60 (*a*), is typical of the English

Fig. 62

castle, and in extravagance of apartments and magnificence of furnishings, it was one of the finest castles in England.

108. Warwick Castle.—Among the early castles still standing that have been converted into modern residences is Warwick, Fig. 61 (*a*). This illustration shows the inner court as it exists today, closed at one end by the original structure and flanked on the right by the modernized buildings that are occupied by the Earl of Warwick. The two large towers are known as Cæsar's tower and Guy's



(*a*)

(*b*)

FIG. 63

tower. The former, completed in 1370, is an irregular polygon, 147 feet high, while the latter was named after Guy, the legendary first earl of Warwick. Guy's tower is twelve-sided, 30 feet in diameter at the base, and has walls 10 feet in thickness and 128 feet in height. The central, or clock, tower, Fig. 61 (*b*), contains the entrance to the court, as shown. This entrance opens into a long passageway cut through solid rock, and this passageway is guarded at the opposite end by another tower containing a portcullis, as shown in Fig. 59 (*b*). The castle was built on the banks of the river Avon, over which the resident section of the structure stands today, as shown in Fig. 62.

109. Palaces in Germany.—Germany did not develop its palaces at such an early period as France, although there were castles and military strongholds scattered all over the country. These, however, were occupied only in time of war, when their owners sought them for safety. During peaceful times, the German barons dwelt in other places, many of them following some simple vocation.

110. Venetian Palaces.—In Italy, especially in Venice, the residence developed a national style. Gothic architecture in Venice was so entirely different from the Gothic of Northern Europe, that in speaking of the style, it is almost invariably qualified by the term Venetian Gothic.

Venetian Gothic architecture depends largely for effect upon its window treatment. Arcaded balconies between flanking masses and rectangular panels treated with traceried arches characterize the style. This is illustrated in Fig. 64 and also at (*b*), (*c*), (*d*), and (*e*), Fig. 41.

The Ducal Palace, Fig. 63, faces on the Grand Canal and presents a front of two stories in arcades and a tall roof treatment over them. The capitals and arches are richly carved, and characteristic tracery pierces the spandrels. The left side of the building faces St. Mark's Square, opposite St. Mark's Church.

111. The palaces Cavalli and Foscari, Fig. 64 (*a*) and (*b*), respectively, present the same general details

(*a*)

(*b*)

FIG. 64

as the Ducal Palace, except that they are differently arranged.

The single narrow structure shown in Fig. 65 is the little palace of Contarini Fasan, generally known as the house of Desdemona.

TOWN HALLS

112. The prosperous condition of the individual cities in the Netherlands and in Germany greatly influenced their political architecture. Owing to the form of government that had developed in this part of the country, it was necessary for the cities to protect themselves rather than to depend on the king or any specific power, and through these arrangements for local protection arose many quaint customs and usages.

A belfry attached to the town hall was considered a great honor to the locality, and it was a privilege that could be obtained only by charter. The belfry at Bruges, Belgium, Fig. 66, is one of the most picturesque of these towers built at this period. It is 352 feet high, of massive construction, and has a winding stairway leading to its top, where a set of chimes have played a fraction of a tune every quarter hour, without interruption, for the past 300 years.

113. The town halls and gildhalls were especially fine, the one at Bruges, Fig. 67, being elaborately decorated with tracery windows and canopied niches. Within the niches were placed statues of the principal characters in the history of the country.

114. The city hall at Brussels, Fig. 68, is similar in character to the one at Bruges, but it is more elaborate in detail, and its tall central tower terminates in a spire. This structure faces on a large square, on the opposite side of which is the courthouse. At the end to the right is a row of gildhalls that are occupied by the several gilds of craftsmen that have been organized in the low countries for many centuries.

115. The town hall at Louvain, Belgium, Fig. 69, reflects the pride and prosperity of that community. The

FIG. 65

§ 51 26651

125 FIG. 66

FIG. 67

127 FIG. 68

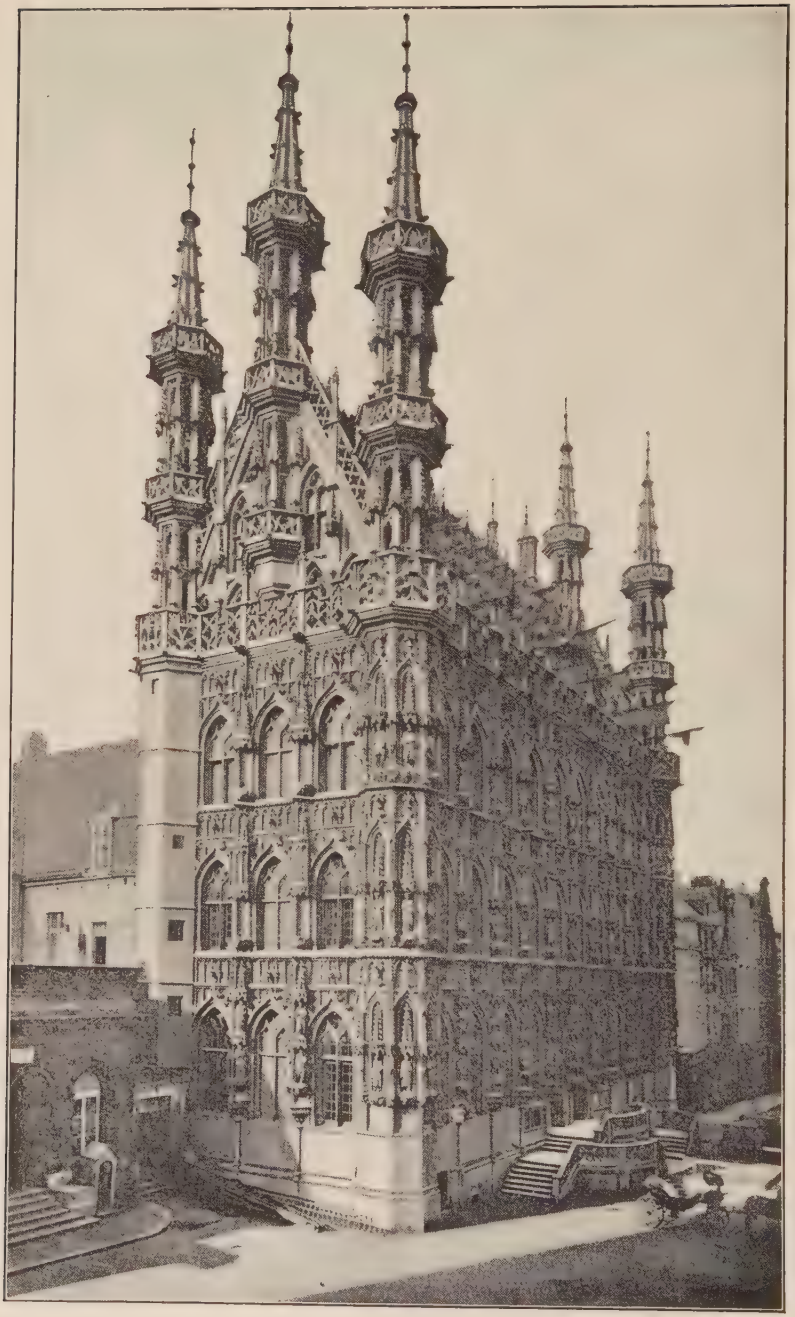


FIG. 69

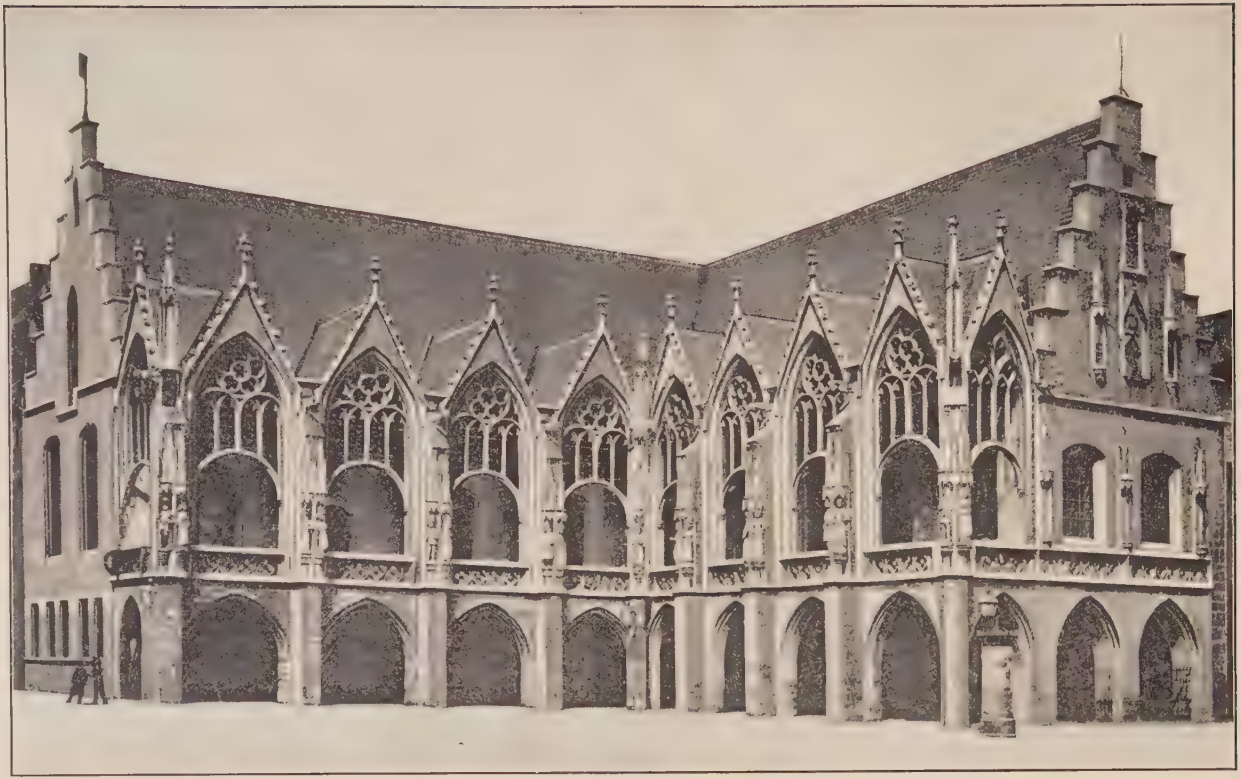


Fig. 70

same general decorative schemes that were employed in Bruges and Brussels are used here, and under canopied niches local heroes are represented in marble effigies.

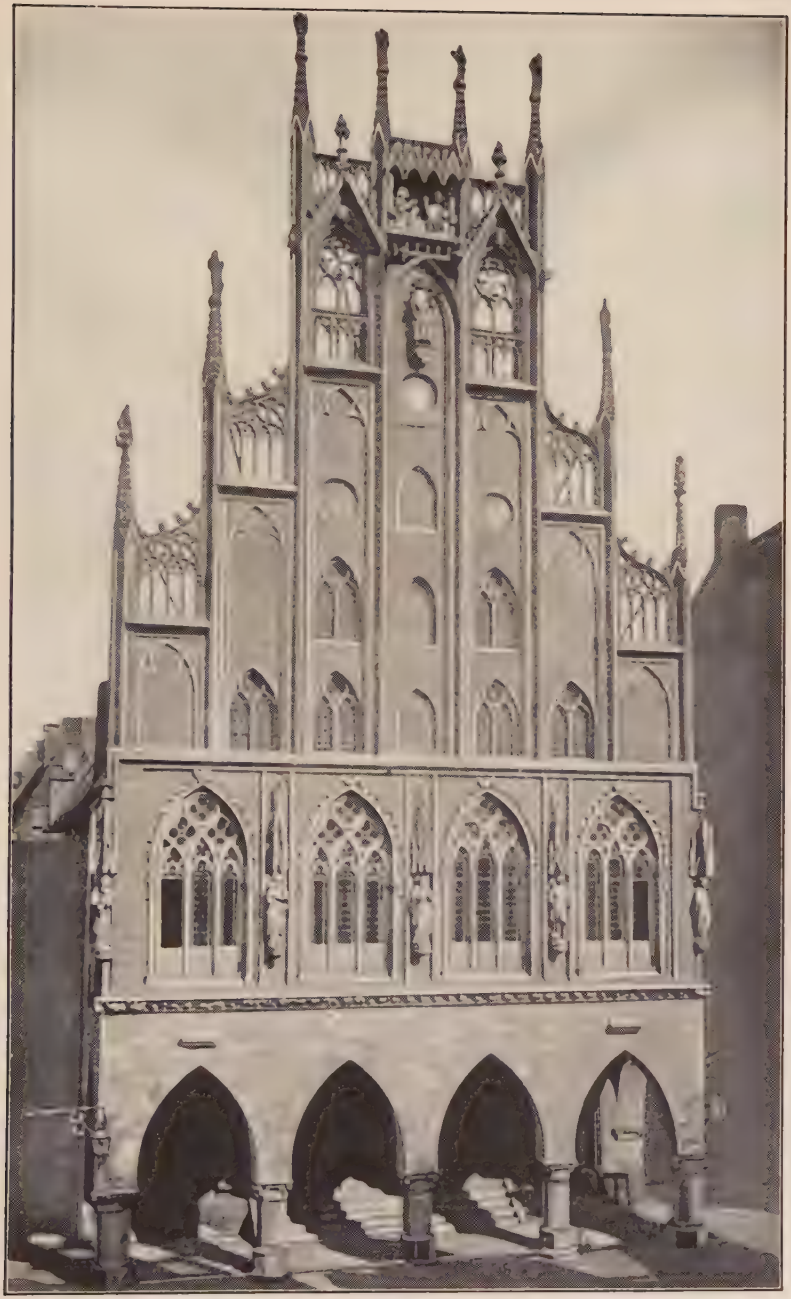
116. Of a more simple character is the city hall at Brunswick, Germany, Fig. 70. The design of this building is decidedly ecclesiastical, yet it presents the same indifference to regularity and balance that characterizes all Gothic constructions. In this example, the high-pitched roof over the main structure is closed in between two stone-stepped gables, and beyond it and independent of it is a two-story arcade, the upper part of which is treated as a series of traceried dormer-windows.

117. At Münster, Germany, the city hall, shown in Fig. 71, consists of only one façade, the lower portion of which is treated as an arcade, while the upper consists simply of a stone screen against the gable. This building is very pretentious, although not especially pleasing, as it has the appearance of flimsiness and gives the impression that it would be likely to blow over in a high wind; an impression that is further strengthened by the numerous braces that can be seen behind the pinnacles, apparently steadying them in their positions.

Gothic architecture, however, never attempted in its best periods to hide its construction; it was a system based on construction, and the gable was usually treated as a gable and no attempt was made to hide it. This town hall at Münster, therefore, is a digression that indicates a decadence in the style.

118. The city hall at Rochelle, France, Fig. 72, partakes more of the feudal character that is seen in the early châteaux of France. The walls surrounding it enclose a court and are crested with battlements supported on corbels. Corbeled towers guard the angles, and the characteristic doors for pedestrians and mounted visitors give access to the interior.

119. In the secular architecture of the Netherlands, the roofs have steep pitches and are frequently terminated by



131 Fig. 71

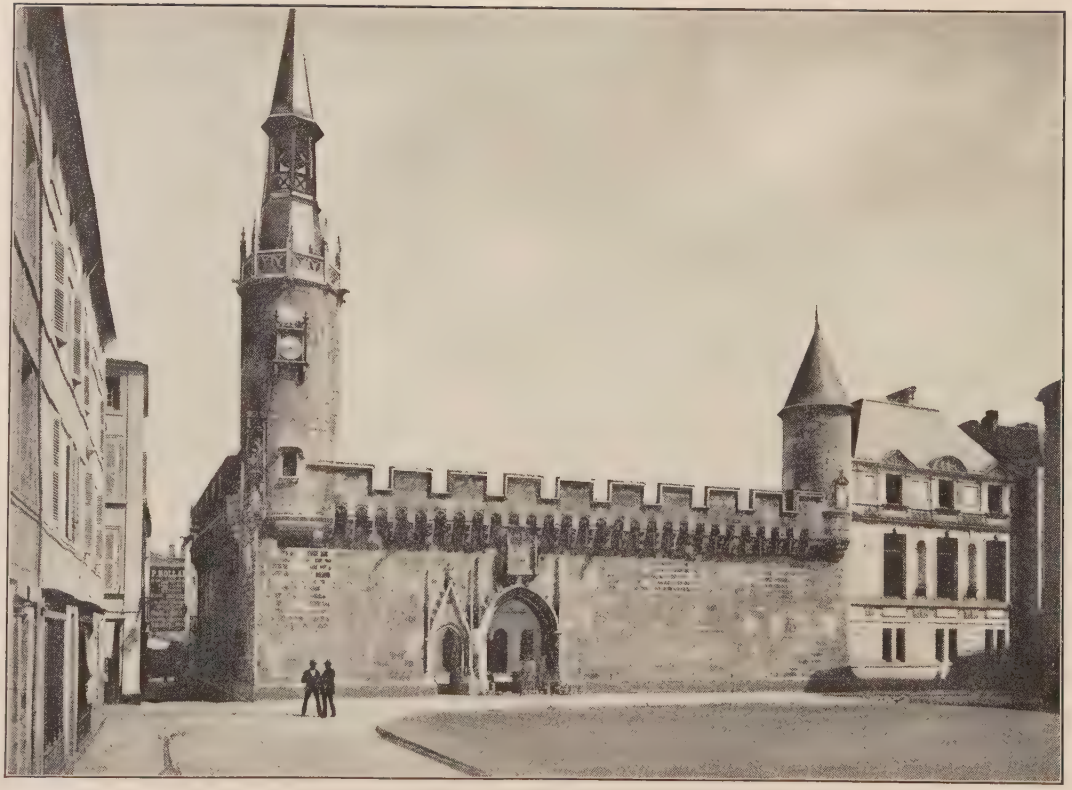


FIG. 72

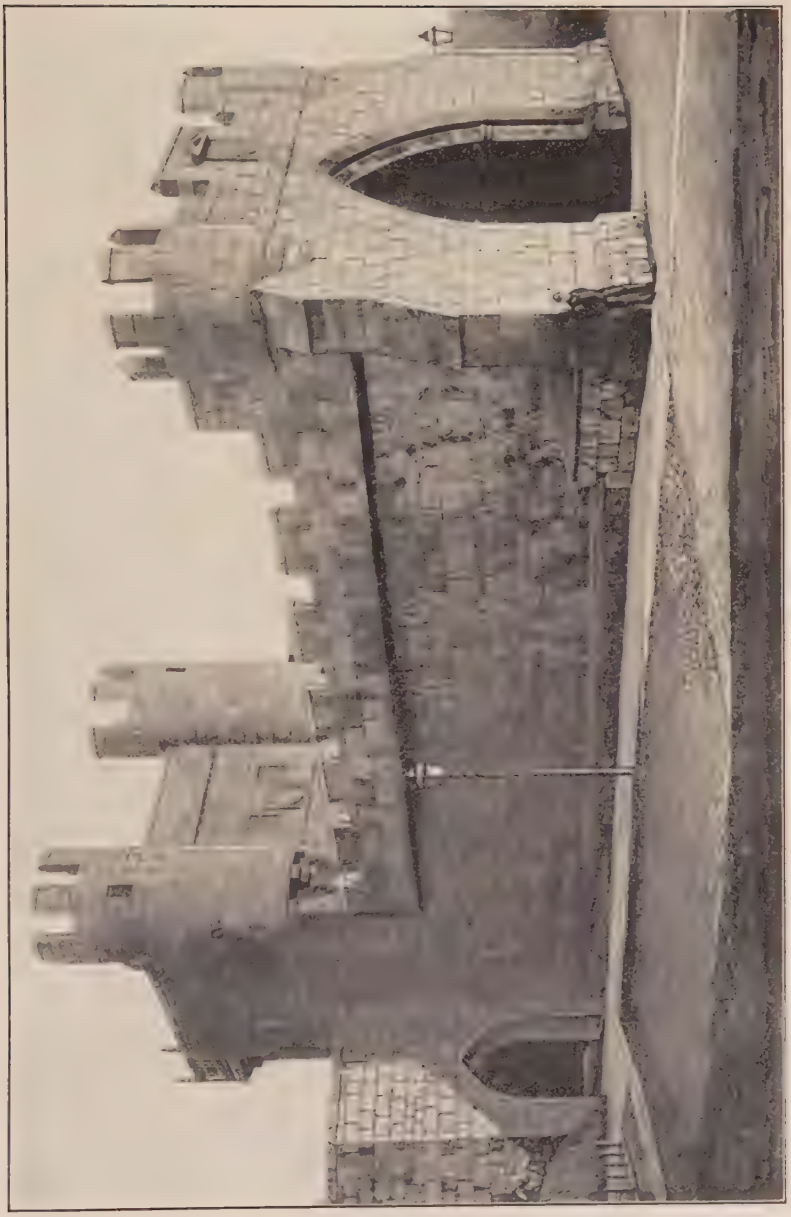


FIG. 73

218—14

crow-stepped or traceried gables of picturesque outline. Turrets and chimney stacks of an ornamental character, with dormers and pinnacles, combine to give variety to the outline.

The walls are more regular in design than in other countries, and as irregularity and independence of relation of one part to another is generally characteristic of the Gothic style, the symmetry and proportion of the Netherland edifices are contrary to the characteristics of Gothic architecture in other countries. (See Figs. 66, 67, and 68.)

Elaborate tracery and paneling characterize the window openings, rows of windows being arranged symmetrically on each side of the center of the building or between prominent end features. (See Figs. 67, 68, 69, 70, and 71.)

CITY GATES

120. Many city gates still remain in the towns that were once walled or partly walled for protection. Among the most picturesque gates are those of York, England, as shown in Fig. 73. These gates are battlemented and are protected by small turrets in which are loopholes for the discharge of small projectiles. There is something deeply impressive about these formidable relics of feudal days as they still stand at the entrances of the older cities. At York, as at other places, the city has grown beyond its original limits, and some of the old city gates are now included within the confines of the city proper, as shown in Fig. 74.

121. In Germany, these gates had a more ponderous character, but they presented a very formal appearance; as that at Cologne. In France, the château style of architecture was followed, and the gate at Nancy, shown in Fig. 75, is very picturesque. This gate has a corbeled attic between its two towers, in the floor of which are machicolations through which boiling oil or molten lead could be poured on the heads of any unwelcome visitors that tried to force an entrance. The loophole over the center of the doorway

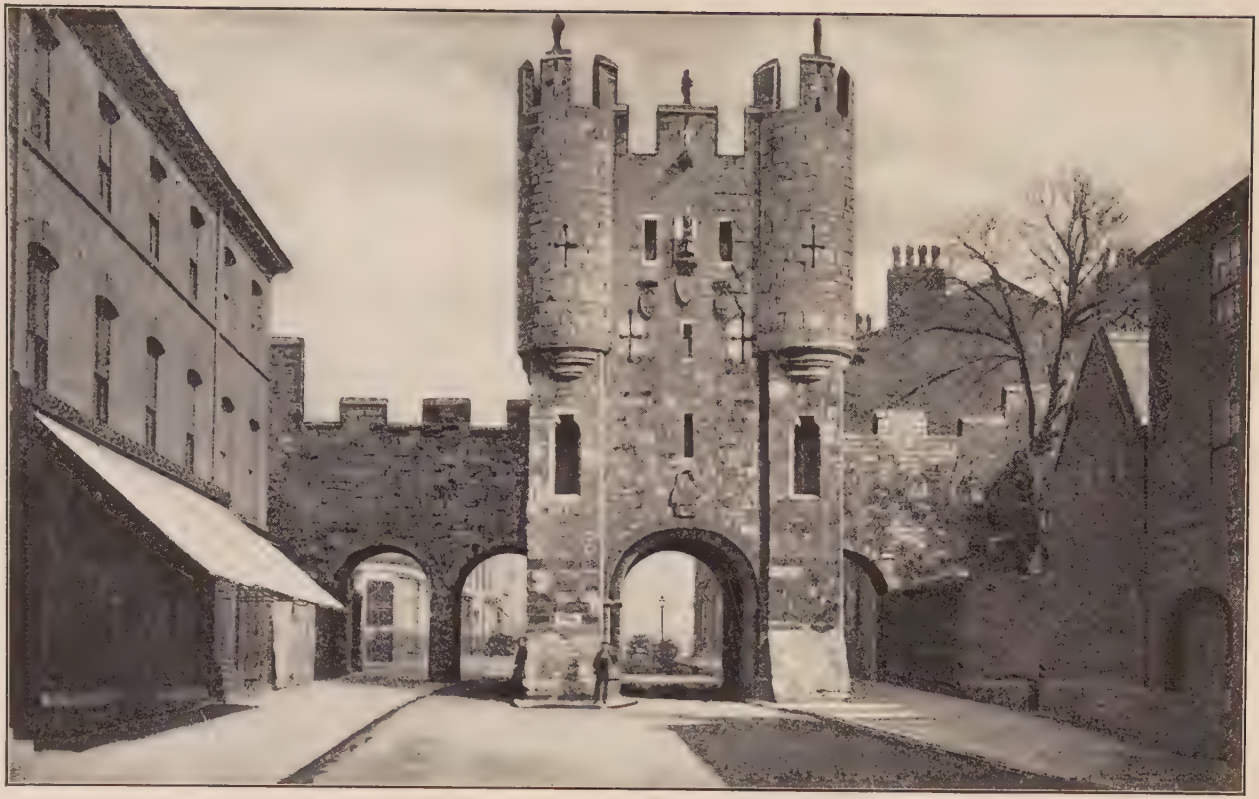


FIG. 74

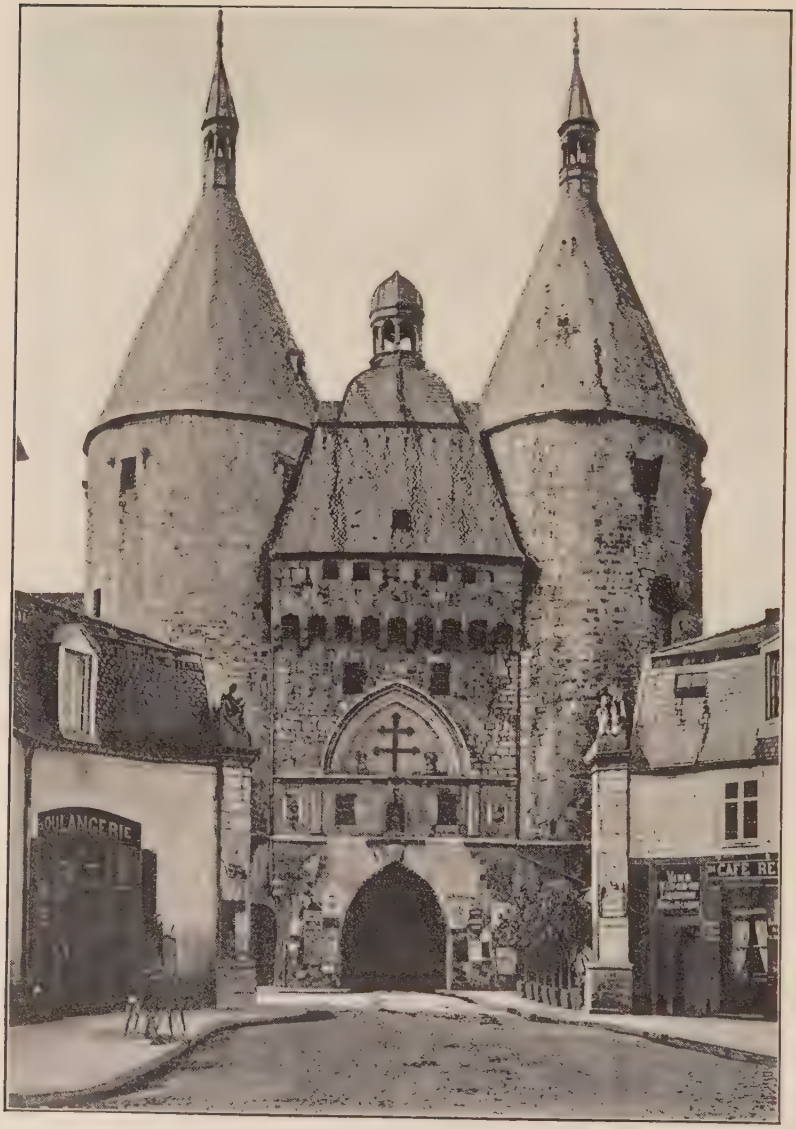


FIG. 75

FIG. 76

is in the form of a double cross, thus combining the decorative motif with the necessities of conditions.

122. At Bordeaux, France, the city gate and the city clock tower, as shown in Fig. 76, are combined in a picturesque construction that rises high above the surrounding buildings. Here, the single tower is carried above the arch, and then it is split into two towers, between which a bell is hung. It then unites over a low, pointed arch that springs tangent from the towers themselves.

MINOR DWELLINGS

123. Some small dwellings were framed with a timber construction, and the open spaces between the structural framework were filled in with brick or sometimes plastered over (see Fig. 77). This was termed *open-timber construction*, and was essentially Gothic in principle, as heavy timbers supported roofs and floors, while the brickwork was simply an enclosing screen between the supports.

In Germany, the roofs of these houses were very high, and frequently contained more stories than the house proper, which it covered. The space under the roof, as in Fig. 78 (*a*), was used as a drying room for the household wash.

In some cities, the ridge was placed parallel with the street, and numerous dormers were introduced for ventilation; while in other places, the ridge was at right angles to the street, and the windows were grouped under the gable. Gables were projected on brackets, and the woodwork was frequently carved elaborately. [See Fig. 77 (*b*).]

(*a*)

(*b*)

FIG. 77

(*a*)

(*b*)

FIG. 78

124. Small brick residences were also numerous, particularly in Germany and the Netherlands. On these the front walls were carried up in a gable, the pitches of which, instead

FIG. 79

of being simple, straight lines, were stepped, as shown in Fig. 79. These stepped gables, especially in the Netherlands, are prominent throughout the Gothic and succeeding periods.

REVIEW EXERCISES

1. Describe the architectural characteristics of (*a*) the Early French châteaux, (*b*) the English castles.

2. Make a sketch in water color of the elevation of a Venetian palace. The pencil drawing may be made from one of the illustrations in the text and then carefully colored from the example of Contarini Fasan.

3. What important structures other than churches and cathedrals characterize the architecture of the middle ages?

4. Make a finished sketch with pencil or pen-and-ink of a fortified city gate of the medieval period and state what national style it represents.

5. What were the characteristics of the minor residences of the middle ages?

MOSLEM ARCHITECTURE

(637 A. D. to 1492 A. D.)

INTRODUCTION

125. **Moslem, or Saracenic, architecture** is the term applied to the constructions of the nations that were followers of the teachings of Mohammed.

Gothic architecture developed from the Romanesque through a natural progress of construction problems. In a similar manner, Romanesque architecture developed from the Roman vaulted style, and Roman architecture in the Western Empire adopted the Greek orders and developed them to suit the requirements of the Roman constructions. Byzantine architecture developed in the Eastern Empire from the Roman domed style, but as Byzantium was originally a Greek colony, the development of the new style shows a strong influence of Greek art. Rome adopted her art from Greece and applied it to her massive construction. Byzantium borrowed construction from Rome and combined it with art borrowed from Greece.

Moslem architecture first developed from the Byzantine, but not in the sense that Byzantine or Gothic developed from the Roman. Moslem architecture at first borrowed neither construction nor decoration from the Christian styles to combine with details of its own, but copied the style entirely.

126. Moslem architecture and ornament will be considered under its principal nationalities: Indian, Arabian, Persian, Turkish, and Moorish. Each nation influenced the style by its particular characteristics, and for this reason the Moorish architecture in Southern Spain is found to be only slightly related to the Moslem work in Turkey. The ornament and decorative schemes, however, are not surpassed in ingenuity in any Christian style.

INFLUENCES

127. Geographical.—Important as was the influence of Byzantine art in Europe from the 6th to the 11th century, there was no people that it affected more than the great and spreading Arab race that propagated the creed of Mohammed, and, after conquering the finest countries in Asia and Africa, finally obtained a footing even in Europe. In the earlier buildings executed by them in Egypt, Palestine, and Spain, the influence of the Byzantine style is very strongly marked, and the tradition of the Byzantine school affected all the adjacent countries to a greater or less degree.

Although the Arabs must have possessed an original art, only a few traces of it remain, and these are in legends wherein grand buildings are spoken of that date back to remote antiquity.

It is known that the wandering and stationary tribes distinguished each other by the names "Felt people" and "Clay people," and this would convey the impression that the latter title implied a knowledge of ceramics; but the character of the decoration of the pottery of these early tribes is at present unknown, as is also that of their arms, fabrics, and fixed dwellings.

On their contact with the Greeks, East Indians, and Persians, the Arabian people produced a style of ornament that formed an important part in the compromise now called by the name Byzantine. Subsequently, when Byzantine art had reached its zenith, Arabian art, under the influence of Mohammedanism, took the form under which it is now known, and may have shown in some applications a certain Byzantine influence exercised on the Arab practice. It is unreasonable, however, to consider Byzantine art, as is sometimes done, as being originally a formation of the Arab style, as the latter has too much character and unity not to be in itself an original conception. There appears to have been a mutual influence exercised between the Byzantine and Arabian during the earliest periods, as inevitably happens in a contest for supremacy between two neighboring styles.

128. Geological.—As the different countries presented different geological formations, the style was influenced locally by the material at hand. In Turkey, domes were of brick and plastered inside and outside, and in Northern and Central India, they were of stone. Marble and sandstone were also available in the latter country, and a monumental style of design was developed. In Spain, the walls were of brick and were plastered on the inside, as were also the wooden partitions separating the rooms.

129. Climatic.—The climate varied somewhat with the different countries, but the development of the style was confined to eastern and southern countries, so that, generally speaking, the climate was excessively hot. This gave rise to a tendency toward small window and door openings.

130. Religious.—Moslem architecture was essentially a religious style. Gothic and Byzantine architecture were developed by Christian nations, but the nations were established before the religion was adopted, and the architecture was developed on structural principles. Moreover, the wars of the Roman Empire that carried the Christian religion into remote parts, were wars for conquest and not for the extension of Christianity. With the Moslems, however, the reverse was the case. It was the religion of Mohammed that united them into a nation, and it was the forcing of this religion on other nations that extended their empire and spread their arts from India to Spain.

The Moslem belief is a simple one and is summed up in the quotation from the Koran, "God's will be done." The Moslem is therefore a fatalist, and believing all things to be preordained, he made no great effort toward any great future achievement. He believed the future had been arranged by God before he himself came into the world. The present was everything to him, as it was all he would be sure of, and this often led to the erection of buildings that were far from permanent themselves. They were, however, lavishly decorated in unsubstantial materials, such as wood, lattice, and plaster.

131. Political and Historical.—As has already been stated, the Saracens in the 8th century spread themselves over Northern Africa and Southern Spain, and while the rest of the world during the so-called dark ages was plunged into the darkest ignorance, Bagdad in Persia, Cairo in Egypt, and Cordova and Toledo in Spain were centers of brilliant, artistic, and intelligent activity under the Moslem government. The Saracen Empire was ruled by a *caliph*, Mohammed being the first. After his death, four other caliphs ruled in succession. Then disputes arose and the empire became divided between two caliphs, one ruling at Bagdad, in Persia, and the other at Cordova, in Spain (see *History of Architecture and Ornament*, Part 2, Arts. **36** to **38**). The caliphate of Cordova became divided into the four kingdoms of Seville, Granada, Toledo, and Valentia. These kingdoms were frequently at war with the Christians in Spain, but this did not prevent the Moorish builders from employing Christian workmen on their buildings, and in this manner there was some Gothic influence expressed in their constructions.

Each caliph was a spiritual as well as a temporal ruler. He, as successor to Mohammed, was the highest priest of the religion and the chief ruler over all the countries that worshiped according to the Moslem rites. These rites were set forth in a book called the Koran, written by Mohammed by dictation from an angel alleged to have appeared to him in a vision.

The religious and civil government thus united had the effect of injecting a religious element into every architectural structure. The change and multiplication of capitals, due to the change of dynasties, also gave impetus to much secular building. The position of women in the Moslem social system exercised great influence in the planning and designing, as provision had to be made for the isolation of the harem, or apartment where the women dwelt, and was also responsible for the elaborate lattice of the windows that would not permit one to see into the apartments from the street or from them into the street.

(*a*)

(*b*)

FIG. 80

CHARACTERISTICS

132. The temples, or places of religious service, of the Moslems are called *mosques*, and these with the palaces and tombs constitute the most important architectural structures—structures that, as heretofore stated, are of interest almost entirely on account of their lavish and brilliant decorations. The mosques consisted of low, flat-roofed buildings, within which numerous rows of columns supported a series of arcades that gave the interior a mysterious and complex appearance, as shown in Fig. 80 (*b*). These were roofed over so as to give a dome effect on the exterior. The domes were usually of a bulb shape, rather than hemispherical, and at the angles of the building were erected tall, slender minarets, or signal towers, from the top of which the muezzins, or priests, summoned the faithful to worship.

The Koran forbade the Moslems to make any pictorial representations of any living thing in their architecture or decoration, as such representation was considered as idolatry; consequently, their decorative schemes consisted mostly of geometrical constructions representing intricate and ingenious fretwork and interlacing of straight and curved lines. There can be but little doubt, however, that this commandment was interpreted liberally in some districts where the decorative schemes appear to be based upon vegetable forms.

The introduction of quotations from the Koran in Arabian characters interwoven with elaborate geometrical ornament, is an innovation original with the Moslems, and friezes and borders of great richness and variety were thereby obtained. (See Fig. 89.)

The pointed arch, similar to the Gothic form of Northern Europe, was used extensively in Egypt and the East, while in Spain and other western countries under Moorish domination, the horseshoe arch (Fig. 87) seems to have been more popular.

EXAMPLES

133. At Cordova, Seville, Toledo, Granada, and several other cities in Andalusia (see Fig. 42) may be found magnificent monuments to the art and skill of the Moslems. These structures were all erected prior to their expulsion in 1492 A. D.

134. The Alhambra.—The Alhambra was the palace and fortress of the Moorish kings at Granada. The exterior of this structure, Fig. 80 (*a*), is impressive, but it is undecorated, as were other feudal castles. The interior, however, was gorgeous beyond description. The walls were tiled below and elaborately diapered in relief above and brilliantly, but harmoniously, colored in blue, red, and gold. The wainscot of the tiles were in geometrical patterns, introducing greens and browns as well as reds and blues. There was no structure problem solved here, however, as the reliefs are all modeled in plaster, supported on a light framework of latticed wood.

135. The Giralda.—The Giralda, or tower of the cathedral at Seville, shown in Fig. 81, is one of the most celebrated towers in the world. It was rebuilt after burning in 1395, and though not so lofty as the original, it is still a most imposing architectural detail.

It is built in two different styles, the lower portion being part of the original Moorish prayer tower, while the top consists of a crown of Renaissance detail. It is hardly conceivable that two such widely differing styles of architecture could be combined in one design and result in as harmonious a composition; yet the Giralda of Seville is as satisfactory a composition as can be found in any country. For two-thirds of its height (about 200 feet) the tower consists of a plain massive structure faced with reddish tiles. Eighty feet above the ground the severity of the tower is relieved by a characteristic surface decoration in panels diapered in arabesque ornament. The original design was battlemented at the top, as were all the feudal-castle towers, but in 1568 the

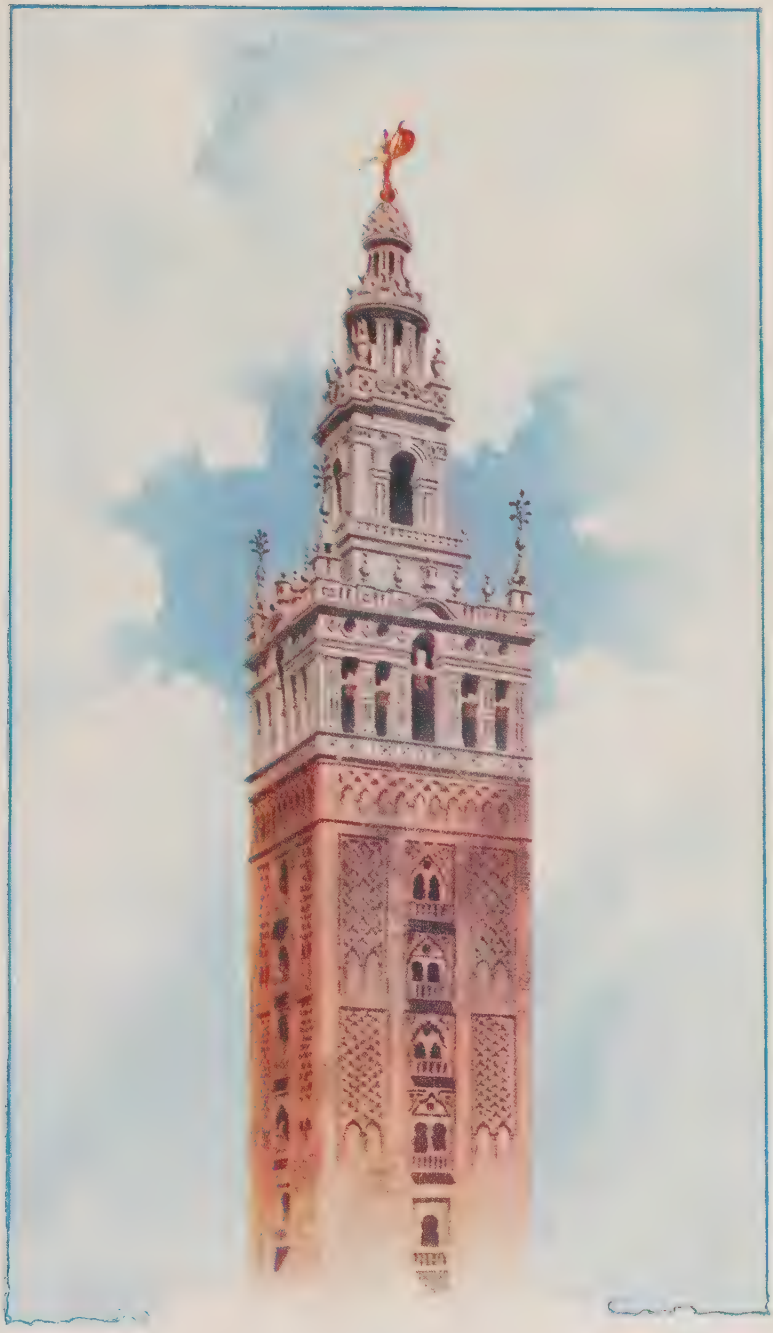


FIG. 81

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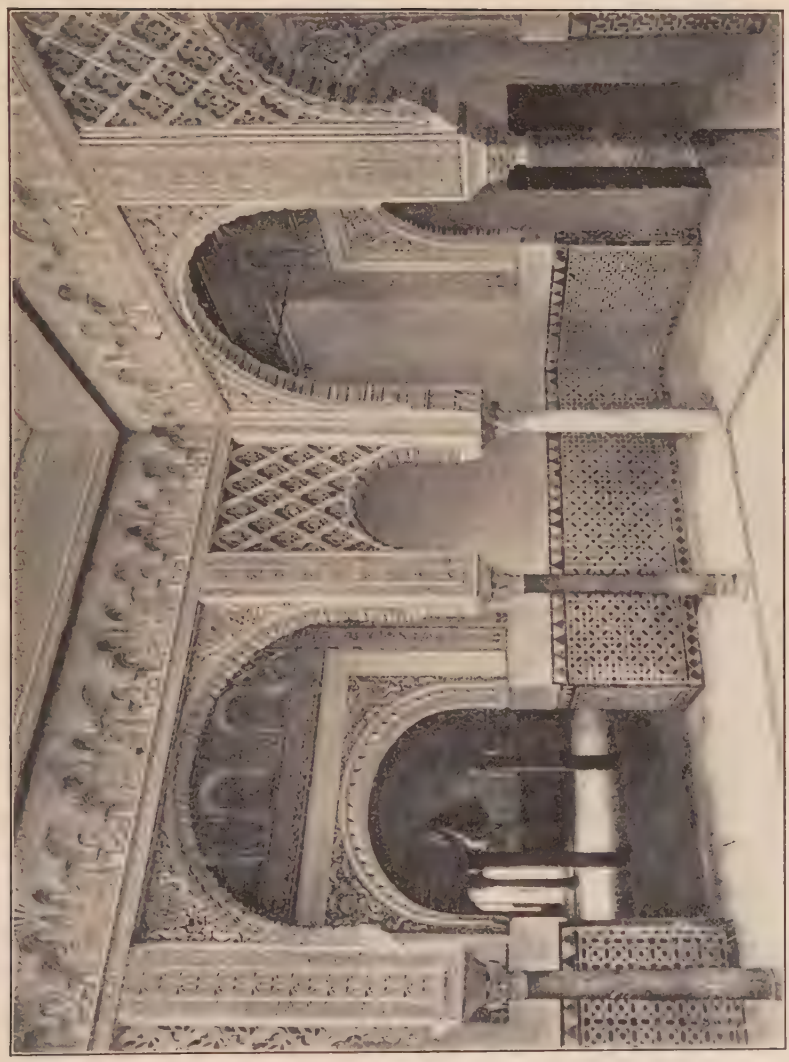


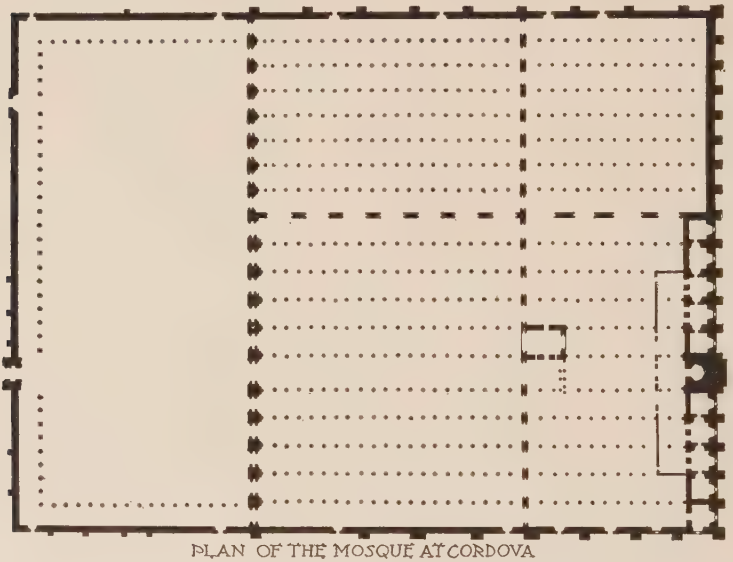
FIG. 82

218—15

Renaissance superstructure was added, of which mention will be made under the subject of Renaissance Architecture (Art. **154**).

136. Alcazar at Seville.—The alcazar, or palace, at Seville, an interior view of which is shown in Fig. 82, was erected about 1350. This structure is now in a partly dilapidated condition, but enough remains to enable one to judge the magnificence of the original design.

137. Mosque at Cordova.—The mosque at Cordova, the plan of which is shown in Fig. 83, was erected in 786. It consists of a parallelogram 422 ft. × 573 ft., and its area is greater than that of any of the cathedrals. This



PLAN OF THE MOSQUE AT CORDOVA

FIG. 83

structure contains seventeen rows of columns, thirty-two in each row, supporting two sets of horseshoe arches elaborately cusped and richly decorated, as shown in Fig. 80 (*b*). The perspective thus formed by this forest of columns is most impressive and inspiring.

ANALYTICAL STUDY

PLANS

138. The plans of the mosques (see Fig. 83) generally consisted of a rectangle with an open, unroofed space in the center, containing a fountain for ablution as enjoined by the Koran. Around this open space was a series of columns supporting arcades, and on the side toward the sacred city of Mecca (east) extra rows of columns were planned so as to give greater depth of covered space. At the corners, minarets arose, and these were usually octagonal, though in some instances they were square. Some of the eastern mosques are cruciform in plan, the central portion being left open and the four arms vaulted over.

The dwellings were also planned with an interior court, and the principal rooms opened from this place on three sides, as shown in Fig. 84.

WALLS

139. The Moslem walls were constructed of brick, stone, or other material, according to what each community provided. They were elaborately ornamented with fine surface decoration in tiles, rare stones, or relief plaster. In the interior of the Alhambra, the walls are wainscoted to a height of 4 feet with glazed tiles, above which a rich arabesque decoration is carried out in plaster, as shown in Fig. 85. In Cairo, some of the walls are built of brick in the first story, and of wood and plaster above.

ROOFS

140. The ceilings were usually flat, except where a dome was used, and were richly decorated in colors and gilding. The dome was a characteristic feature of the mosques and tombs in the eastern section, but is not often seen in Spain. Except where the Byzantine model was closely

Fig. 84

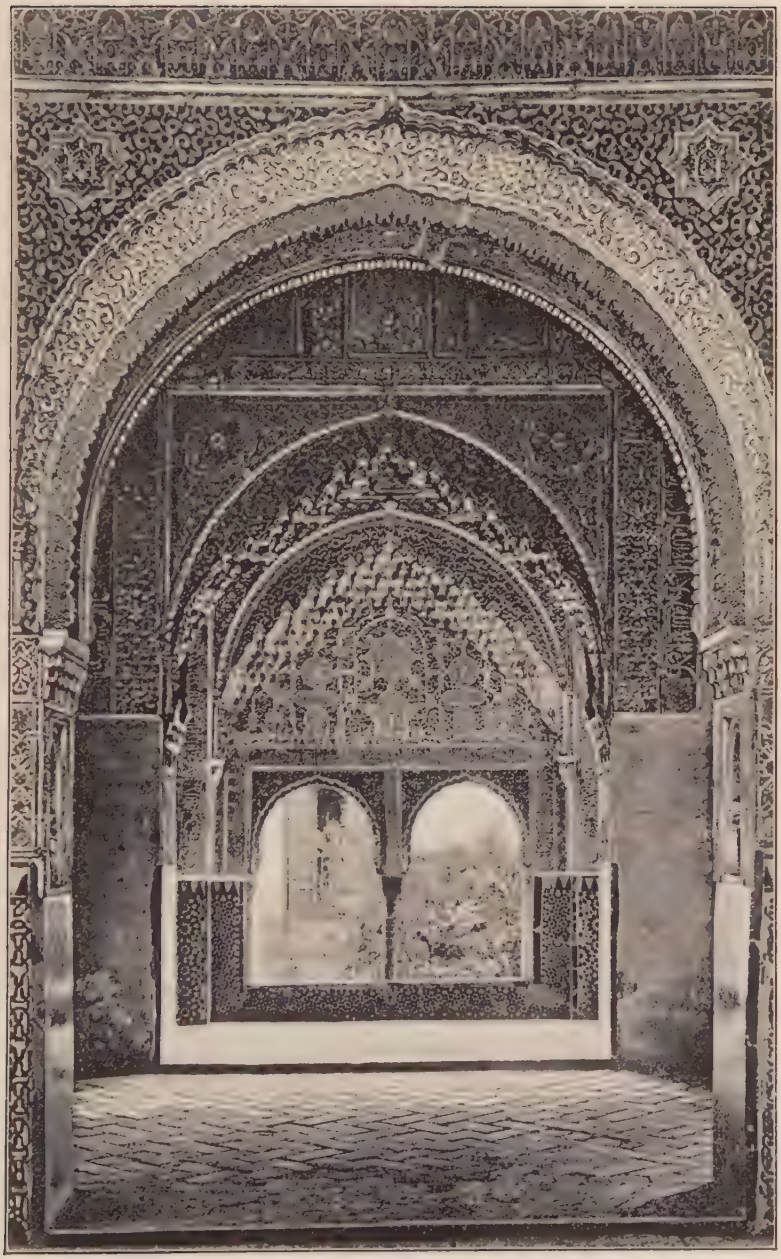


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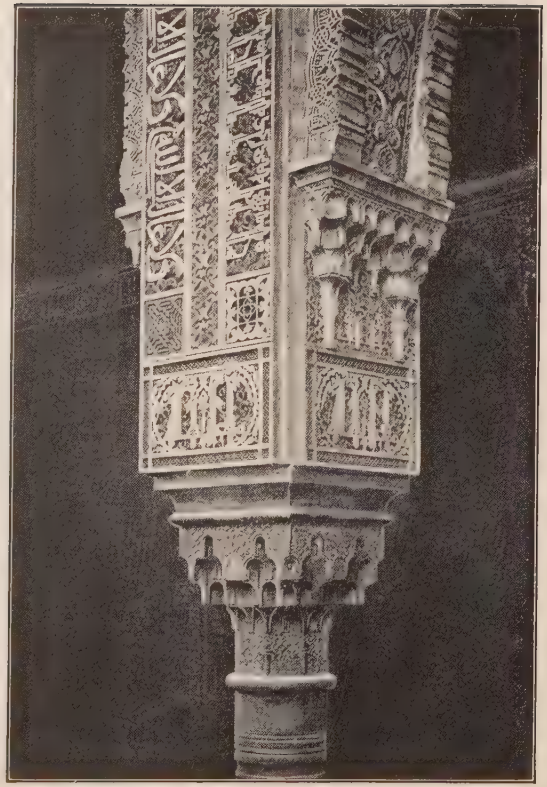
FIG. 85



(*a*)

(*b*)

FIG. 86

followed, the dome is seldom hemispherical, but of a bulbous shape, and windows were frequently placed in the lower parts. The domes were built over square compartments, and the pendentives of the Byzantine style were replaced by a series of projecting corbels, one over another.

COLUMNS

141. Many of the early Moslem buildings used old columns taken from Roman or Byzantine ruins. A characteristic style soon developed, however, and in the Alhambra are found examples of original compositions that are at once graceful and pleasing. The capitals are usually square, with a long necking, and the supporting column is tall and slender. (See Figs. 86, 87, and 88.)

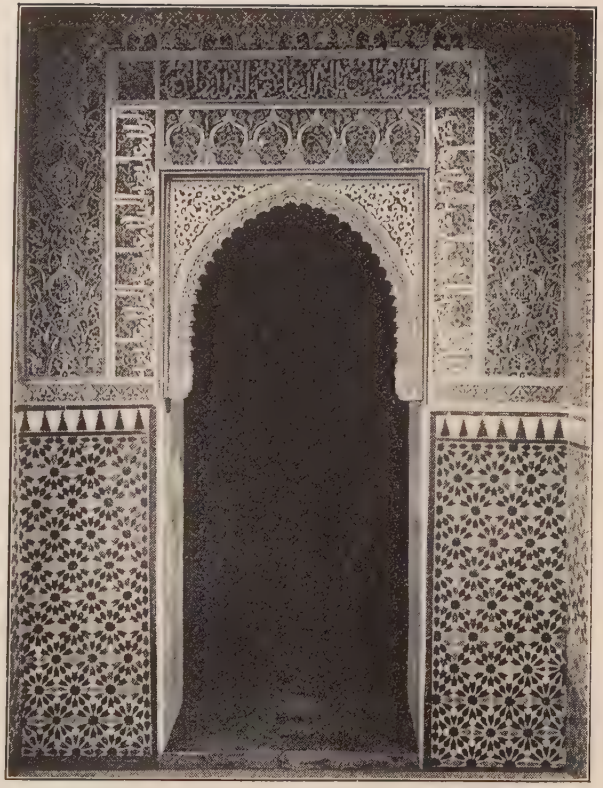
OPENINGS

142. The Moslem windows were small, owing to the excessive heat. They were nearly always fitted with elaborate lattices in geometrical patterns and were occasionally glazed with colored glass. The window heads and other openings usually conformed to one of four styles: (1) The pointed arch, which was used with square jambs and unmolded soffit; (2) the ogee arch, which was used mostly in Persia and India; (3) the horseshoe arch, Fig. 87 (*b*), which is characteristic of both Spain and North Africa; and (4) the foliated arch, Fig. 88, which is typical of the Moors in Spain.

These arch forms when used for doorways and arcades, were frequently tied across at the springing point with a wooden beam or an iron rod.

MOLDINGS

143. Moldings were of little importance, their place being taken by elaborate bands of surface decoration. Occasionally, however, moldings of the Byzantine model were used around doorways and window openings.



(*a*)

(*b*)

FIG. 87

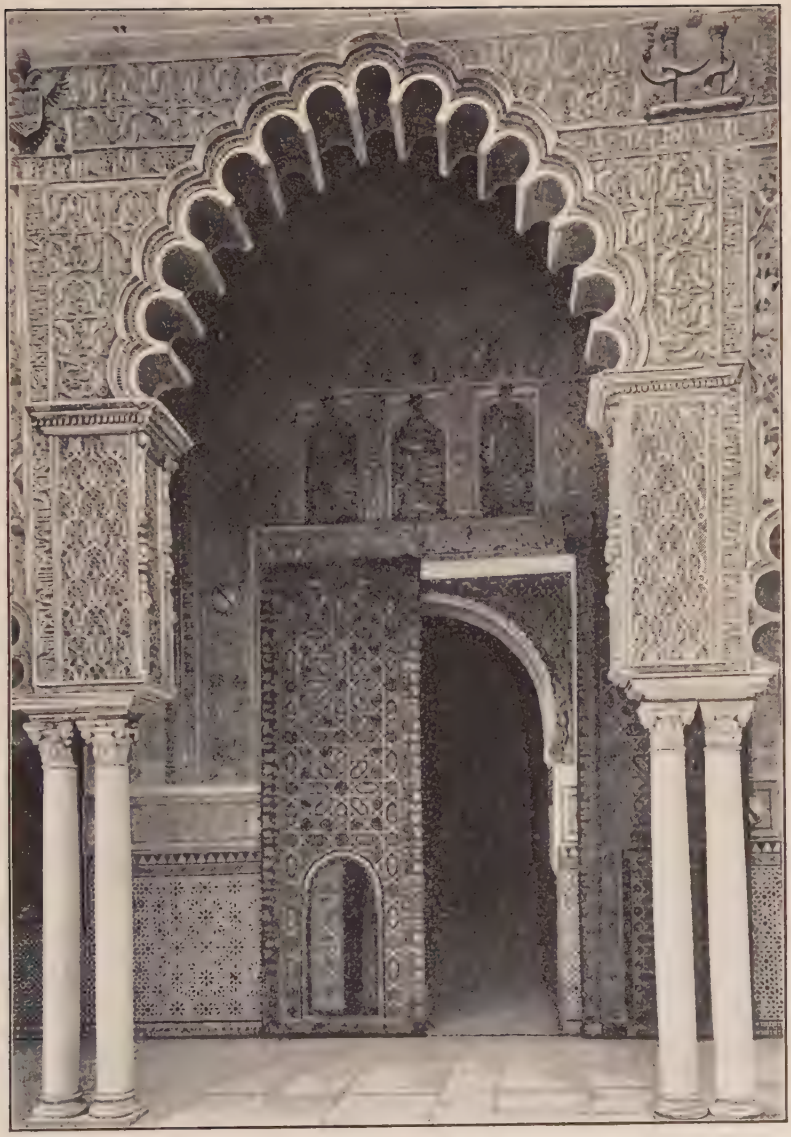


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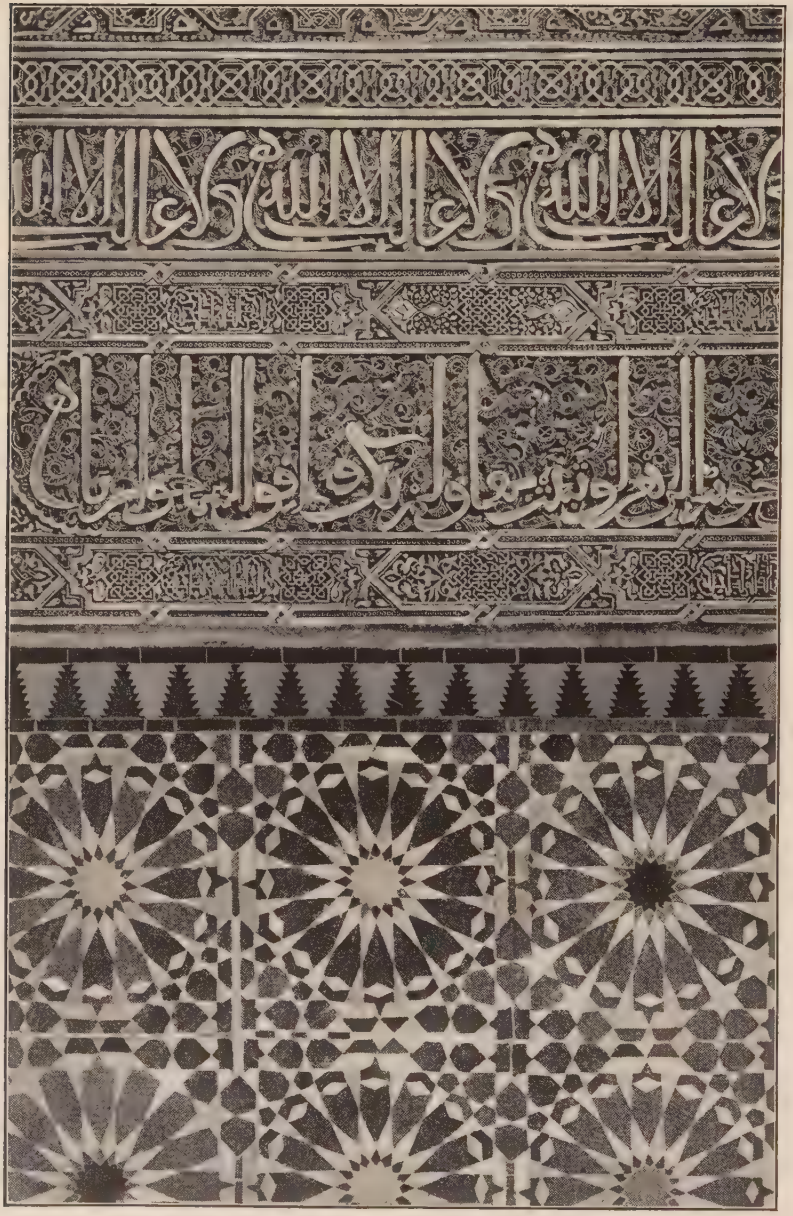
FIG. 88



(a)

(b)

FIG. 89

ORNAMENT

144. The crowning glory of Moslem architecture was the ornament. This was practically limited to inanimate and non-vegetable types, owing to restrictions of the Koran, and presented mostly geometrical patterns of great intricacy and diaper treatments in endless variety. The Moslem designer being thus deprived of the opportunity that enabled the Gothic architect to treat his façade with elaborate sculpture, developed in its stead an intricate scheme of color that produces most beautiful results.

145. Classification of the Moslem Ornament.— The ornament may be divided into four general classes, as follows:

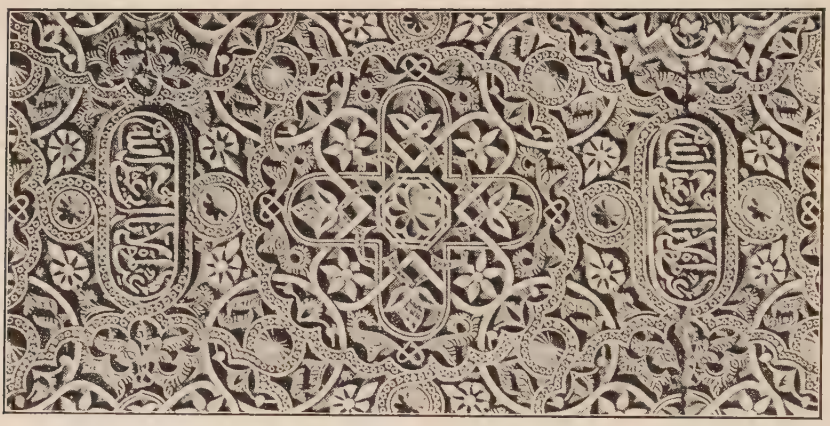
1. The **mnemonic,** which consists of quotations from the Koran interwoven with geometrical constructions, as shown in Fig. 89.

2. The **superposed,** which consists of a diaper pattern in relief laid over a ground pattern of a more or less geometrical character, as in Fig. 90 (*a*) and (*b*).

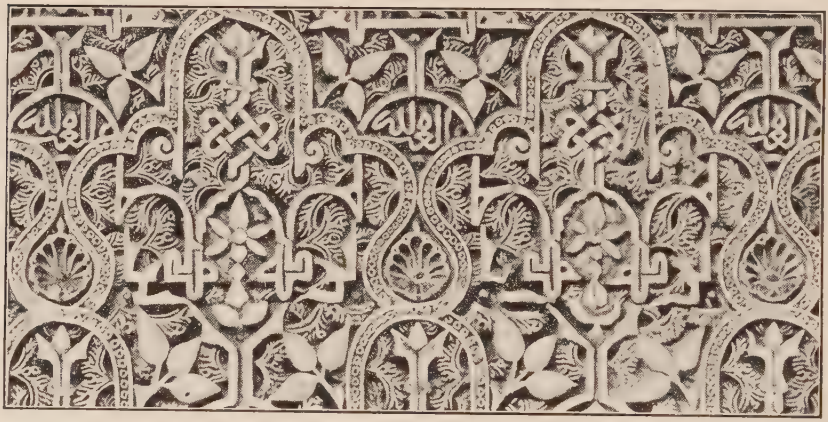
3. The **stalactite,** which was used primarily in place of pendentives, as in Fig. 86.

4. The **geometrical,** which consists of interwoven bands and ribbons, as in Fig. 91.

146. Moorish Ornament.—In Moorish art, the decoration arises naturally from the construction, and the constructive idea is carried out in every detail of the ornamentation of the surface. In decorative schemes, the general forms were first cared for; these were subdivided by general lines, the interstices of which were then filled with ornament that was again subdivided and enriched for closer inspection. The Moors carried out this principle with the greatest refinement, and the harmony and beauty of all their ornamentation derived their chief success from this observance; their main divisions contrasted and balanced perfectly. The detail never interferes with the general form, and, when seen at a distance, the main lines strike

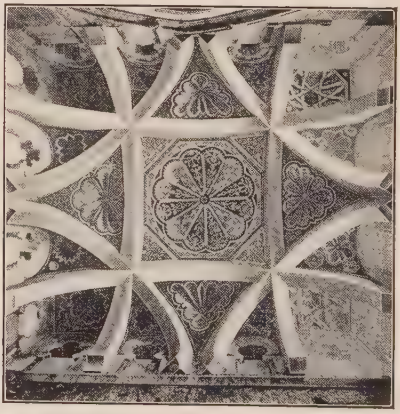


(*a*)



(*b*)

(*c*)



(*d*)

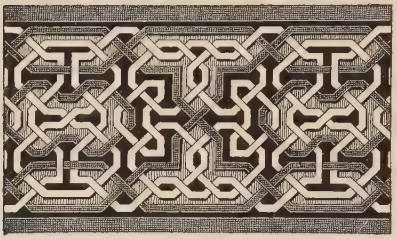
FIG. 90

the eye and the fine detail disappears; nearer approached, more detail comes into the composition, and, on close inspection, all detail of the surface appears as a grand powdering of ornament.

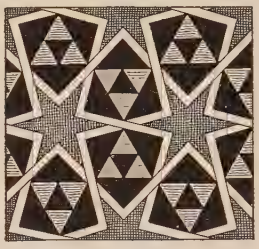
Moorish ornament lacks the charm of symbolism that is so characteristic of Egyptian ornament; but its place is filled by the Arabic inscriptions, which address themselves directly to the eye by their personal beauty. They not only excite the intellect by the difficulties of deciphering their complex and curious involutions, but also delight the imagination when read by the beauty of the sentiments they express and the music of their composition. Long fantastic letters, interwoven with graceful but intricate geometrical patterns, as shown in Fig. 89, lead the eye to decipher the words, find sentiments that are ever present and associated with all their daily doings, and simple but truthful phrases elaborately twisted or intricately woven, of which the one most frequently repeated is the quotation from the Koran: "There is no conqueror but God."

147. Coloring in Moorish Ornament.—The coloring of the Moorish ornament was treated as skilfully as was the form. The Moors followed certain fixed principles founded on observations of natural laws. The colors employed on their stucco work were in all cases a combination of the three primaries—blue, red, and yellow, the last being represented by gold—and the secondary colors—purple, green, and orange—occurred only in the mosaic dados. These, being nearer the eye, formed a point of repose from the more brilliant coloring above.

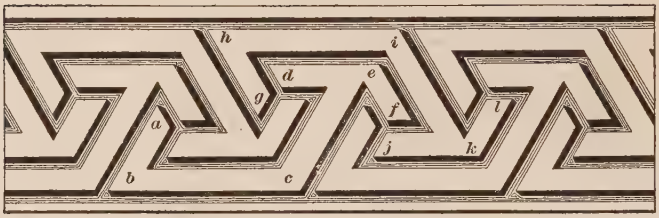
148. It may be remarked here that among the Egyptians, Greeks, Arabs, and Moors, the primary colors were used exclusively in the earliest period of the arts, and, during the decadence, the secondary colors were used. Thus, in Egypt, the temples of the Pharaonic period were painted entirely in primary colors, while those of the Ptolemaic period used the secondaries. The early Greek temples were decorated in the primary colors, while at Pompeii every



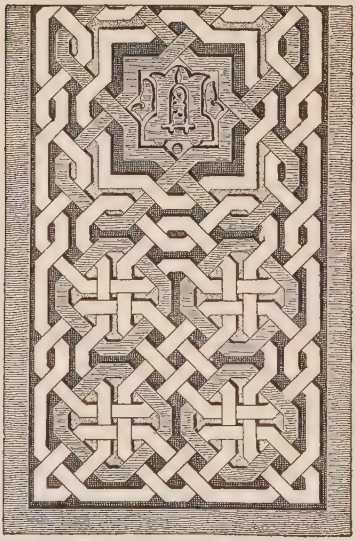
(*a*)



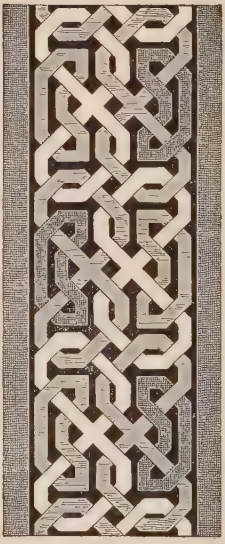
(*b*)



(*c*)

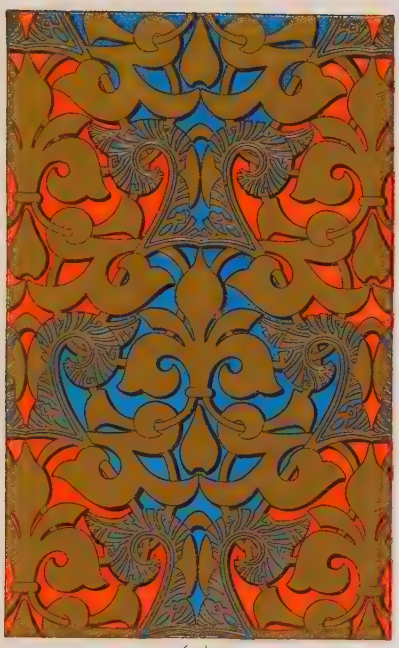


(*d*)



(*e*)

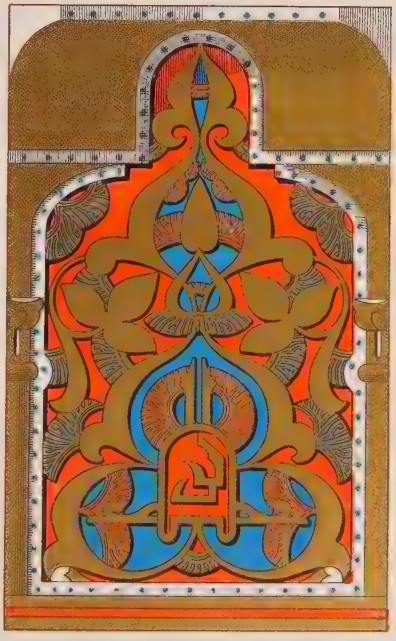
FIG. 91



(a)

(b)

(c)



(d)

FIG. 92 § 31

variety of shade possible appears. In modern Cairo, and in the East generally, green appears frequently side by side with red, where blue would have been used in the earlier times. This is equally true of the works of the middle ages. In the early manuscripts and in stained glass, the primary colors were chiefly used, although other colors were not entirely excluded; while, in later times, every variety of shade and tint is used indiscriminately, with preference for none.

149. In Moorish art, the primary colors were used in the upper portions of the design and the secondary and tertiary colors in the lower portions. This is entirely in accordance with natural law, as the primary blue is shown in the sky, the secondary green in the trees and fields, and the tertiaries in the earth itself. This color scheme is also observable in flowers, where the primary colors are the buds and flowers and the secondaries are the leaves and stalks.

150. System of Moorish Coloring.—The system of Moorish coloring might be considered absolutely perfect. All the surfaces were modeled and proportioned according to the color they were to receive, and, in using the colors blue, red, and gold, care was taken to place them in such positions that they should be best seen themselves and add most to the general effect. On molded surfaces, red (the strongest color of the three) was placed in the depths, where it might be softened by shadow, and never on a raised surface; blue was placed in the shade, but not deep shade; and gold was placed on all the surfaces exposed to strong light, for it was evident that by this arrangement alone could their true value be obtained. The several colors are either separated by white bands or by the shadow caused by the relief of the ornament itself, and this seems to be an absolute principle required in coloring—colors should never be allowed to impinge on one another. (See Fig. 92.)

151. Interlaced Ornament.—Moorish interlaced ornament is governed by certain geometrical patterns in its formation, and although the number of these patterns is small the variety of designs produced on them is great.

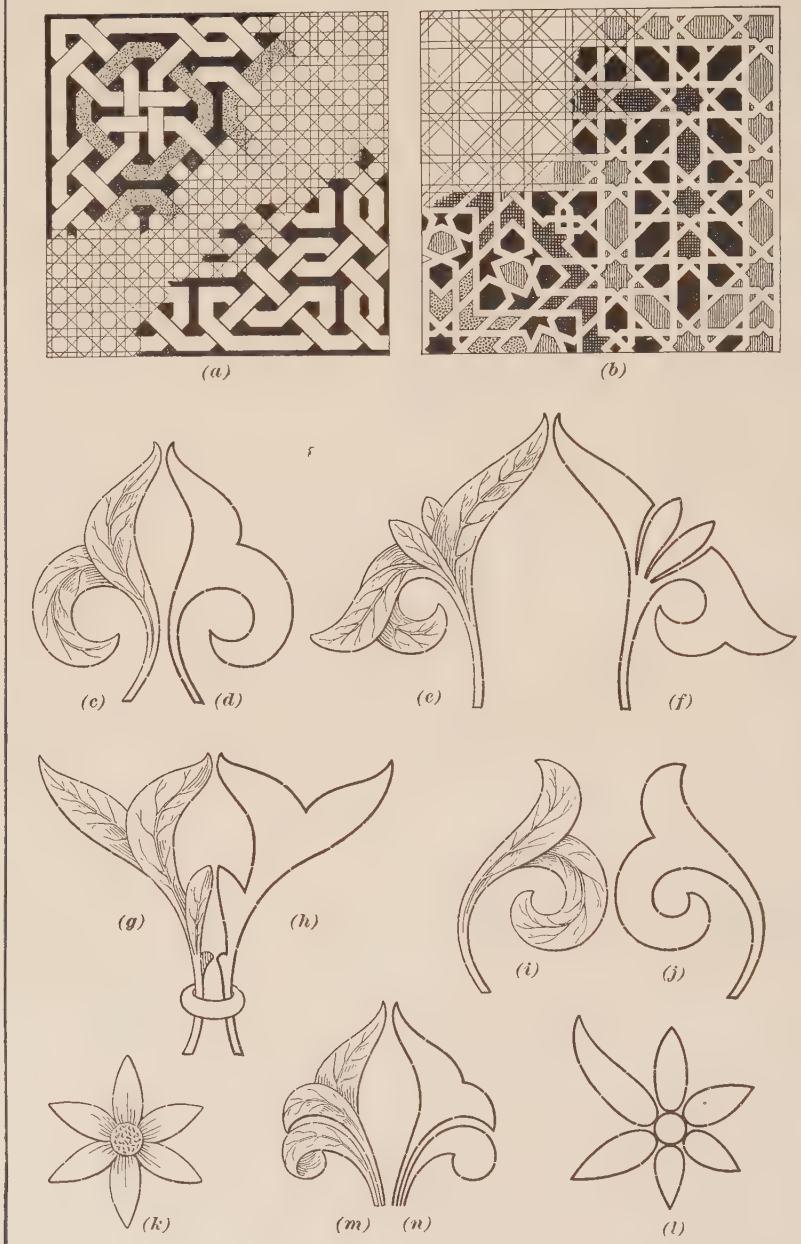


FIG. 93

In Fig. 93 (*a*) is shown an interlaced pattern consisting (1) of vertical and horizontal lines arranged in pairs, the distance between each pair being twice the distance between the lines composing each pair, and (2) of diagonal lines drawn through the pattern at an angle of 45°, and spaced a distance apart equal to the vertical and horizontal pairs. The diagonal lines are arranged so that the set of squares formed by their intersection will contain in their centers the intersection of the vertical and horizontal pairs.

In Fig. 93 (*b*) is shown a slight variation of the preceding interlaced pattern. In this example the vertical and horizontal lines are drawn singly and the diagonal lines are drawn in pairs, but of slightly different proportion. The amount of Moorish ornament that can be developed from these two figures is unlimited, and the Moors themselves extended even this limit by the variety of coloring in the different parts. Figs. 91 (*d*) and (*e*) are based on the system shown in Fig. 93 (*a*).

152. Moorish Motifs.—No matter how much the whole ornamentation of the Moors is disguised, it is all constructed geometrically. Their fondness for geometrical forms is evinced by the great use of mosaics, in which their imagination had full play. However complicated may be their patterns, the mosaics are all extremely simple when the principle of setting them is once understood. They all arise from the intersection of equidistant sets of lines around fixed centers. [See Fig. 89 (*a*) and (*b*).]

153. Notwithstanding the fact that the Mohammedan was forbidden by the Koran to execute ornament based upon animal or vegetable types, there can be no doubt that some of the characteristic devices found in the Moorish wall decorations were conventionalized forms based upon leaves and flowers. In Fig. 93 (*d*), (*f*), (*h*), (*j*), (*n*), and (*l*) are six forms that constitute the details of the surface decoration shown in Fig. 94, and it can be readily believed that these conventional forms were derived from the plant forms shown in Fig. 93 (*c*), (*e*), (*g*), (*i*), (*k*), and (*m*).

154. Arabian Ornament.—The forms just mentioned enter largely into the characteristics of Arabian ornament, although not to such a marked extent, as may be seen in Fig. 95 (*a*) to (*f*). Here, the characteristic Arabian interlaced work is united with the peculiar foliated terminal that

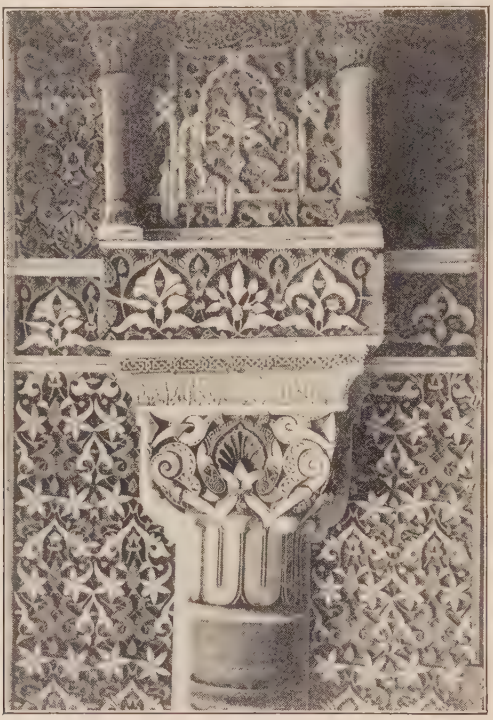


FIG. 94

is found in no style but the Arabian, and is similar to the foliations analyzed in Fig. 93.

155. In tilework and inlay, the Arabians were particularly adept. Fig. 95 (*g*) and (*h*) shows examples of their ingenuity and skill in the design of tile pavements.

In Fig. 91 (*b*) is shown another example of this style of ornament, taken from a mosaic pavement in a mosque at Cairo, Egypt. Here, the geometrical simplicity of the pattern can be easily traced, as the design consists simply

(b)

(d)

(e)

(f)

(g)

(h)

FIG. 95

§ 51

of two horizontally arranged zigzag lines, crossed at regular intervals by sets of diagonally arranged zigzag lines.

156. In Fig. 91 (*c*) is shown an ornament generated on a different system, but on a similar geometrical idea. This ornament, too, is suggestive of the fret pattern, though entirely different from any frets that have hitherto been observed. However, the shape of the enclosed figure *a b c d e f*, it will be observed, is identically the same as the figure *g h i j k l*, and the repetition and alternate arrangement of these two peculiar outlines give the key to the whole system of ornament shown in the figure.

157. Fig. 96 (*d*) is from an illuminated copy of the Koran, and illustrates the influence of Byzantine art on that of Arabia. The general construction lines of the ornament are Byzantine in character, while the filling in is typically Arabian.

Another pattern is shown in Fig. 96 (*e*), and consists of a number of scrolls of a more or less geometrical character, and, though simple in itself, it is fascinatingly complicated in its conception. The design is executed in two colors, and a little study will show that the outlines of the two colors are identical. The light portions of the design in the upper half of the figure are a duplication of the dark portions of the design in the lower half of the figure, and vice versa. Every detail on one half is exactly reproducible in the opposite color on the other half, and, if the figure were sawed out on the line dividing the two colors, it would produce two outlines exactly the same in every respect.

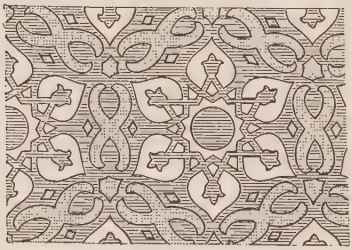
158. East Indian Ornament.—The most striking characteristics of East Indian ornament are continuity and abundance of decoration. The surface decoration is usually filled up entirely with a profusion of ornamental forms that, if not exactly alike, are very similar. The ground color is always warm and harmonious—occasionally light, though more frequently dark—which serves to unite the designs and to add greatly to the general effect.

The method of distribution and the admirable feeling for color procures in Indian decoration a richness and calm that

(*a*)

(*b*)

(*c*)



(*d*)

(*e*)

FIG. 96

gives it an undefinable sense of repose. The designs are usually based on some floral type and are treated in a most conventional manner, and though the imitation bears a closer resemblance to nature than in most of the styles already studied, it is by no means servile. The type from which an ornament is derived can usually be recognized without trouble, and, although floral ornament is occasionally seen under the pure art form characteristic of the Egyptian style, it is usually treated with a pliancy of execution and picturesqueness of idea that brings it to a closer resemblance to the modern style.

In the execution, however, Indian art never attempts the rounding of a form (a process that is naturally opposed to the idea of surface decoration), and usually confines itself to silhouette drawings, in which the outline is shown off by a dark tint on light grounds or by a light tint on dark grounds.

159. In the equal distribution of surface ornament over the grounds, this nation exhibits a remarkable perfection of drawing. An exact balance is obtained between the various colors used, and this balance is carried to such a nicety that it is practically impossible to reproduce any of their woven or embroidered goods with any degree of accuracy. In all their woven fabrics, the colors are so fused together that the entire piece of goods at a little distance presents no individual coloring, but a neutralized bloom.

In Fig. 96 (*c*) is shown a diaper pattern taken from an Indian textile. This example exhibits the regularity of repeated form that completely fills the surface, as just described. There is a slight tendency toward a geometrical formation observable in this pattern, where the wavy line becomes tangent to its neighbor. This geometrical pattern, however, is not so rigidly carried out as in Fig. 96 (*b*), where the construction lines governing the main details consist merely of semicircles connected by short, straight lines, thereby forming knees, as indicated at *a*. The style of ornament enclosed in the geometrical figures thus formed is typical of Indian design, and shows a number of forms

tangent to a general stem, all of which may have had their origin in brush strokes of painted work, or possibly in the shape of the palm leaf, which they slightly resemble.

In Fig. 96 (*a*) is shown a typical example of Indian ornament taken from a woolen fabric, many of the details of which will be found similar to the strokes just referred to.

160. Turkish Ornament.—The architecture of the Turks is patterned after the early Byzantine style, although their system of ornamentation is a modification of the Arabian style. In fact, it may be considered as an application of Arabian ornament, without any understanding of the meaning, derivation, or type of that ornament.

Constantinople was not taken by the Turks until 1453, although they had occupied the surrounding countries for over a century. They immediately adopted the Byzantine style of architecture for their mosques, and thus St. Sophia stands, with some modifications, as the type of Turkish mosque down to the present day.

When the art of one people is borrowed by another of the same religion but of different character, temperament, and customs, the resulting designs are certain to show the deficiency of intellect or refinement that the borrowing people possessed in contrast to that of those from whom it was borrowed; and this is the case with the Turks when compared with the Arabs. There is the same difference in refinement, elegance, and judgment between the Turkish ornament and Arabian ornament as there is between these two peoples. The Turks themselves can hardly be considered an artistic nation. They have built buildings and executed designs in their cities, but have employed foreign artists to do the work. All their public buildings, therefore, present a mixed style. It is not at all unusual to find in a Turkish building floral ornaments of Arabian and Persian origin side by side with details from Rome.

The Turks were the first of the Mohammedan nations to adopt European fashions in architecture, and their modern buildings and palaces are the work of European architects

and artists, and are designed in the most approved European style.

161. The Turkish embroideries give about the only style of ornament that can be considered strictly national, as work of this character must necessarily exhibit the characteristics of the race, and, judging from this, it will be readily seen that their art instinct is far inferior to that of India. Indian embroidery is perfect in the distribution of its forms and in all its principles of ornamentation. With Turkish ornament, the only examples that approach any degree of perfection are found in the carpets, but these are executed mostly in Asia Minor, and are probably not designed by Turks. The designs of most of them appear more Arabian, and differ from the Persian carpets in being more conventional in their foliage treatment.

The most prominent colors in Turkish ornament are green and black; in fact, these colors form a feature of the ornament. In modern Turkish ornament, green is much more prominent than in ancient examples, where blue was the important color.

162. Persian Ornament. — The outlines of Persian ornament are generally taken from the conceptions of Arabian architecture, but they are modified by Indian tradition and the peculiar genius of the Persian race. The floral motif in some examples is scattered through the decoration with apparent freedom, and, in others, it is inserted in the linked network and usually placed at the intersection of lines; but even in the latter case, it is treated in a manner that is half way between the Arabian conventionality and the Indian naturalism. A consideration of the characteristics of the Persians will help to understand this more fully.

163. Persian Compared With Arabian Art.—The Arabs belonged to the Mohammedan sect of Omar, while the Persians had split from this faith, and belonged to the sect of Ali, and were great drinkers of wine. They attributed to flowers a symbolical language, and did not exclude the representation of flowers in their decoration, which is also

animated by real and fantastic animals, and sometimes, though rarely, with the human figure. The resources resulting from this mixed style are enhanced by the manual skill and remarkable fertility possessed by the Persians. Bookbinders, potters, embroiderers, and miniature painters emulate one another in taste and skill. Persian carpets are still considered the finest in the world, and the vases, tiles, and enamel bricks from that country are models of taste, and European manufacturers endeavor to equal them by imitation.

164. Persian Compared With Indian Art. — The Indian and Persian styles resemble each other in their polychromatic decoration. The rule is usually a silhouette, with geometrical outlines relieved by conventional coloring on a dominating generating ground.

The great attention given, in Persia, to the illumination of manuscripts, which were widely spread through all Mohammedan countries, would naturally tend to spread the influence of this mixed style, and the decorations of houses at Cairo and Damascus, and the mosques and fountains even of Constantinople, are tainted with it to a greater or less extent. Groups of natural flowers are represented in vases and enclosed in panels of conventional Arabian ornament.

REVIEW EXERCISES

1. What difference in religious influences affected the spread of Christian and Mohammedan architecture?

2. Describe the general characteristics of Moorish ornament.

3. Describe the system of coloring used by the Moors in their ornament.

4. Into what classes is Mohammedan ornament divided?

5. Make a drawing in color of the elevation of a Moorish arch supported by two or four columns with appropriate decoration in the spandrels. For this, the general idea of the arch may be taken from Fig. 82, 84, or 88; the capitals of the columns from Fig. 86 or 94, and the color scheme from Fig. 92.

6. Make a drawing of Moorish interlaced ornament on a system of intersecting lines, as in Fig. 93 (*a*) or (*b*).

HISTORY OF ARCHITECTURE AND ORNAMENT

(PART 4)

RENAISSANCE ARCHITECTURE

(A. D. 1500 TO A. D. 1800)

INFLUENCES

1. The influences that combined and caused the return to classic architectural models throughout Europe at the beginning of the 15th century are deeply interesting and must be thoroughly understood in order that the character of the reborn style may be comprehended. The term **Renaissance** means rebirth, and may be applied not only to architecture, but also to literature, painting, and manners and customs of the people.

2. Geographical.—The Renaissance movement arose in Italy in the 15th century and spread from there to France, Germany, England, and all Western Europe. Its details varied in the different countries, but the main characteristics were followed out everywhere.

3. Geological and Climatic.—The geological and climatic influences varied in different countries and lent local characteristics to the style in some places.

4. Religious.—The invention of printing about the middle of the 15th century led to a spread of knowledge, a spirit of inquiry, and a diffusion of freedom of thought generally throughout Western Europe. Since the fall of the

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Roman Empire literature had been despised by all except the clergy. There had been no books in any European language for nearly a thousand years; hence, there was no occasion for the people to learn even to read and write. The monks wrote missals and translated portions of the Bible, and many most elaborately decorated pages bear witness today to the conscientiousness of their motives. However, these were out of the reach of the people and were read in the monasteries only.

Through the influence of the classic literature that was published in their language for the first time, the Teutonic races developed a desire to break away from the influences of the Church. This desire was encouraged by the preachings of Martin Luther, in Germany, and of John Wyclif, in England, in which countries the Reformations of the Church proceeded side by side with the Renaissance in architecture. In England, however, where the Reformation took a strong hold on the people, few new churches were built, as there were so many erected during the previous period, but there was great activity in civil and domestic architecture. Henry VIII repudiated the authority of the pope, confiscated the Church properties, and distributed among laymen the wealth and lands of the monasteries. This led to the building of great manor houses, etc. by the possessors of these vast estates. In Italy, on the other hand, the Reformation took no hold at all. Numerous churches were built or rebuilt in the new style, but comparatively few civil or domestic structures were erected.

5. Political and Historical.—As a marked intellectual development always manifests itself first in literature, it soon affects the public taste generally and thus influences the architectural development of the period. Dante, Petrarch, and Boccaccio, three celebrated Italian writers, aided greatly in the spread of the newly discovered classic literature that finally caused a revolt against medieval forms.

In 1453, Constantinople fell into the hands of the Turks, and many Greek scholars fled from there to Italy, where

their learning was also added to that of local scholars, and classic ideas were further instilled into the people.

Among other manuscripts discovered and translated at this time was a book on classic architecture written by Vitruvius in the year 50 B. C. This gave forms and proportions for the Roman orders and was immediately established as a textbook, which is used as a reference in various forms down to the present day.

6. The architecture of Italy was the first to be affected, as the Gothic style had never taken a firm hold there. The problems of vaulting that had contributed so much toward the development of the style in Northern Europe did not trouble the builders of Italy, where Roman remains such as the Pantheon, the Basilica Maxentius, the Colosseum, etc., presented models for further constructions, or afforded places sufficiently large for Christian services.

Feudalism had never taken the hold on old classic Italy that it had on France, Germany, and England, so that the principal cities grew individually strong and developed a spirit of civic pride and municipal enterprise (see *History of Architecture and Ornament*, Part 3, Art. **62**). As classic architecture came to be considered the proper form for all buildings, these cities immediately adopted it for their public structures and private palaces. Hence, in Italy, the Renaissance architecture is varied according to the city, rather than according to its period as in other countries.

7. When the empire of Charlemagne was divided between his three grandsons, in 843 A. D., the Italian portion, including Lombardy, fell to Lothaire (see Fig. 26, *History of Architecture and Ornament*, Part 2). Later, Lombardy was absorbed by Otho and became a part of the Holy Roman Empire. However, owing to constant disputes between the succeeding emperors and the popes, Italy suffered from almost constant internal dissensions and strife.

In the latter part of the 12th century, the emperor attempted to restrict the liberties of the cities in Northern

Italy. This led to the formation of the League of Lombardy, which consisted of twenty-three cities that united and declared the right of electing their own magistrates and making their own laws. The emperor then formed an opposition league of opposing cities, and between them war existed for 9 years. In 1176, the emperor acknowledged the right of the republics to govern themselves.

8. The most important of these Italian republics were Florence and Venice. The glory of Venice began during the Crusades, as many of the crusaders passed through there and traveled thence by sea to Palestine. The ships brought back silks, spices, and jewels from the Orient, and Venice became one of the richest cities of Europe.

Florence grew strong through the commercial spirit of her citizens. There were large manufacturers of silk and woolen goods and jewelry. Many of the citizens followed banking as a profession, and their gold coin, which was called a *florin*, and was first coined in 1252, became the standard coin of Europe.

One of these Florentine families of merchants, Medici by name, rose to great prominence in Florentine politics, and finally Lorenzo de Medici rose to the head of the government and was sole ruler of Florence from 1478 until his death in 1492. His splendid patronage of all branches of the fine arts gained for Florence the reputation of being the most artistic city in Europe. De Medici collected manuscripts, which he deposited in the public library, and purchased many pictures and pieces of sculpture by the most prominent artists of the age. About this time war with France brought into Italy Charles VIII, Louis XII, and Francis I, three successive kings of France, and the art treasures and manuscripts awoke in these sovereigns the desire for similar things in France. This Medici family afterwards gave eight dukes to Tuscany, two queens to France, and four popes to the Vatican, so that its rise to prominence affected the political and historical conditions not only of Italy but also of France for many generations.

CHARACTERISTICS

9. Renaissance architecture was the characteristic style throughout civilized Europe during the 15th and 16th centuries. It was a deliberate break in the system of designing that had characterized the buildings up to this time. The nature and requirements of the materials no longer fixed the conditions of the design, but the materials were forced to fulfil conditions imposed on them by the classic designs. The leading characteristic of the style was the classic orders used decoratively, as had been done by the Romans, as well as structurally, as were the columns and piers during the Gothic period. Buildings erected for modern uses were designed in the classic style of the temple and basilica; but as the style developed, many new and pleasing arrangements of these classic orders were arrived at, so that a style was finally evolved from which grew all other styles down to the present day.

10. In Italy, where the movement started in the 15th century, there were many skilful jewelers, goldsmiths, silversmiths, and other craftsmen that naturally aided in the expansion of the Renaissance ideas. On account of their generally acknowledged good taste, architects frequently consulted these craftsmen and in many cases became their pupils for the purpose of acquiring experience in design. Therefore, when buildings came to be designed by men that had received their training largely under jewelers, goldsmiths, painters, and sculptors, it is not strange that finished results were given more consideration than the principles of construction that led to the end. The Italian schools of painting also affected the buildings in this respect, as they created the tendency to consider buildings as works of art instead of structural problems.

Generally speaking, there was a tendency to combine the Roman designs with the Gothic construction. The body of the walls and the decorative facing were one and the same thing constructively, because the architects of the period did not perceive that the Roman architecture that they had

learned to admire was simply a shell over a concrete filling. The Renaissance architect therefore continued to build walls of cut stone and bonded exterior details well into the body.

During the better periods of Gothic art, each stone was finished and carved in the shop before it was brought to the building—a method that developed a high degree of craftsmanship among the masons and compelled the sculptor to suit each piece of stone to the decoration it was to receive. During the Renaissance, however, the carving was executed after the stones were in the building, and the joints in the stonework could not therefore be arranged as best suited the architectural conditions.

11. Architectural compositions were considered more as a picture of masses and lines than as structures for a utilitarian purpose, as they were often designed by men whose training had been under painters and workers in the precious metals. Many of the Roman palaces designed under these conditions present a stately appearance, where the pilasters, friezes, cornices, etc., are used simply as elements of a line composition to divide the façade of the building into pleasing proportions. For this reason, it is not fair to state that Renaissance architecture was purely imitative, for new and original features were introduced and architecture came to be more individualized and less local or national in character. Many architects invented combinations that characterized their work and thus established styles or systems of designs that were followed by their pupils and admirers for several generations.

12. The Renaissance architects unhesitatingly borrowed the Byzantine treatment of the dome, but increased its exterior prominence by raising it high on the drum, in which large windows were inserted to illuminate the interior. They also introduced into wall treatment massive rusticated masonry, wherein the actual roughness of the stone was made an architectural motif, as in Fig. 1; whereas, heretofore, classic walls had been of smooth stone or overlaid with rich marbles.

In decorative details, great innovations were made. Bronze gates, rich grilles, lamps, and rails of elaborate metalwork were introduced, and wall decorations with motifs introduced from the classic, Gothic, and Saracenic schools characterized the interiors.

The ribbed vaulting of the Gothic architects was abandoned soon after the Renaissance movement, and the old Roman method with the solid arch was revived. This did not occur in actual construction, however, so much as in decorative form, for instead of the solid-concrete vault of the Romans, the Renaissance architects covered many of their halls and staircases with richly decorated, semicylindrical ceilings, which were simply plastered on a wooden framework.

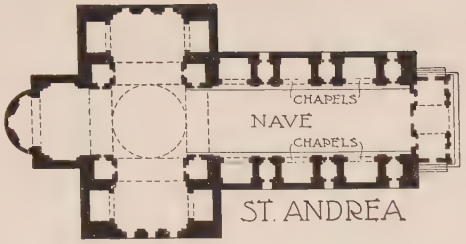
ANALYTICAL STUDY

13. Before considering the examples and characteristics of the style in each country, a comparison should be made between the characteristics of the Renaissance and those of the Gothic. Although several of the most imposing cathedrals of Europe were erected during the Renaissance period, the style found its most luxurious expression in municipal structures, palaces, country residences, and elaborate fronts of town buildings and monuments of civic improvement.

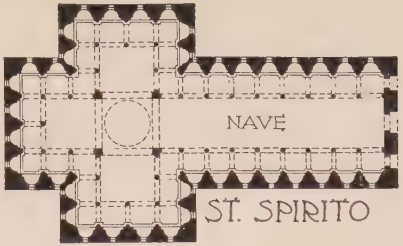
PLANS

14. Gothic plans were irregular and were composed of a multitude of parts, tending to create a feeling of largeness. They included towers, spires, turrets, etc., and all passages and apartments were as far as possible vaulted in stone, except in the minor structures. All Renaissance plans are symmetrical and are proportional, so that each part bears a certain relation to every other part. Few parts, simply arranged, tend to make the buildings appear small. (See Fig. 2.)

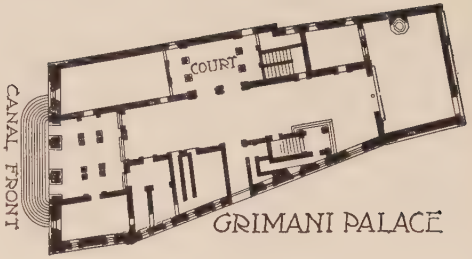
In the Gothic period, interiors of churches were broken into chapels and numerous subordinate details, and were


CHAPELS
NAVE
CHAPELS
ST. ANDREA

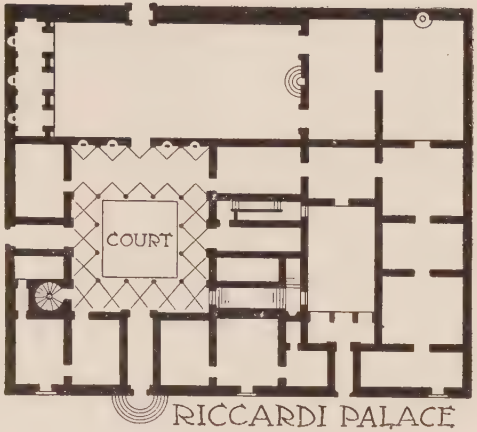
(*a*)


NAVE
ST. SPIRITO

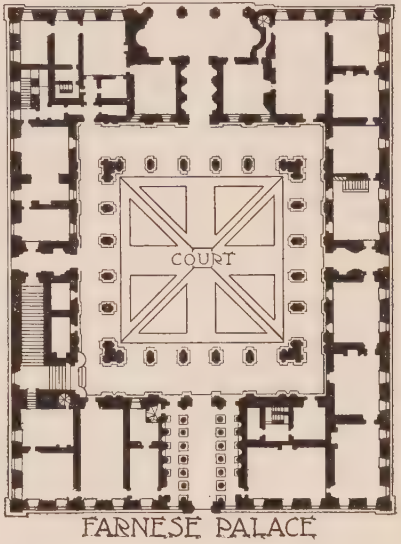
(*b*)


COURT
CANAL FRONT
GRIMANI PALACE

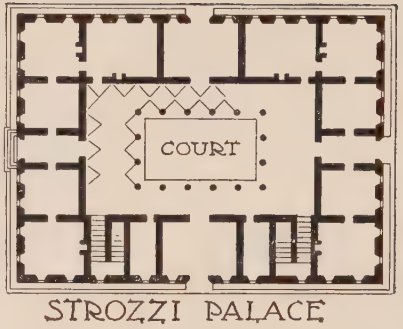
(*c*)


COURT
RICCARDI PALACE

(*d*)


COURT
FARNESE PALACE

(*e*)


COURT
STROZZI PALACE

(*f*)

FIG. 2

covered with vaults or open timber roofs; whereas, the Renaissance churches were planned on Roman lines and were covered with domes and barrel vaults. The Renaissance church plan seldom includes more than three or four compartments, and its grandeur is produced by spaciousness and decoration.

WALLS

15. Gothic walls were built of rough masonry, and consisted of small stones laid in irregular courses, with cut ashlar facings at the angles. The gables were steep and were richly ornamented. Renaissance walls were of ashlar masonry throughout, which, in the lower stories, was sometimes heavily rusticated, as shown in Fig. 1. The stones were large, uniform in size, and laid in regular courses. Gables gave way to low pediments and semicircular vault ends, simplicity, and breadth of style (see Fig. 3).

ROOFS

16. The roofs in the Gothic period were steep and pointed, in order to cover the vaulting. The vaulting added richness to the interior through its multiplicity of ribs, bosses, and pendants. Open timber roofs, candidly displaying their construction in richly carved details, were used in domestic architecture, and chimneys, spires, turrets, and towers contributed to establish an intricate and picturesque roof line.

Renaissance roofs were low and flat, following the slope of the classic pediment. The vaulting was after the Roman pattern, that is, semicylindrical and without ribs. Square spaces were covered with a dome supported on pendentives, as in Byzantine structures, and the soffits were plastered and richly decorated in fresco. The dome on the exterior was raised in order to form a conspicuous detail in the external composition, so that in each instance there were virtually two domes, one for internal effect and the other for external effect. In Italy, the real slope of the roofs was

FIG. 3

hidden as much as possible, but in Northern Europe, it was made an element of the design.

COLUMNS

17. When used in the Gothic buildings, the columns were purely structural, without any fixed proportion of length to thickness. The capitals and bases were either simply molded or richly foliated, according to the period, and although the shafts were frequently clustered, they were never planted against a wall purely for decorative purposes.

Renaissance columns were designed after the five orders of classic architecture, which at this time became the rule for everything. Columns and pilasters were frequently appliquéd against the wall of a building like a buttress but purely for decorative purposes. Thus, façades came to be divided into three parts, namely, *basement*, *superstructure*, and *roof*, in the proportion of pedestal, column, and entablature of the order that was designed to stand against them, as shown in Fig. 3. The shafts were frequently rusticated, and they were often fluted, or wreathed with bands of foliage or fruit.

OPENINGS

18. Openings were placed wherever required in the Gothic period, without any attempt at symmetry or centering of one window over another. The windows were large, divided by mullions, and glazed in richly designed painted glass. The jambs were formed in receding planes, in the angles of which small circular shafts with carved capitals support a richly molded pointed arch.

Renaissance openings were symmetrically disposed throughout the façade, the doors usually being in the middle, while the windows were evenly distributed each side and one over another in the different stories. The windows were small in Southern Europe, and square or circular-headed, usually without mullions, while in Northern Europe, they were large and frequently possessed mullioned

FIG. 4

subdivisions. Instead of receding jambs, there was a projecting architrave molded and frequently carved, but designed on classic lines, with a pedimented or circular top (see Fig. 4).

MOLDINGS

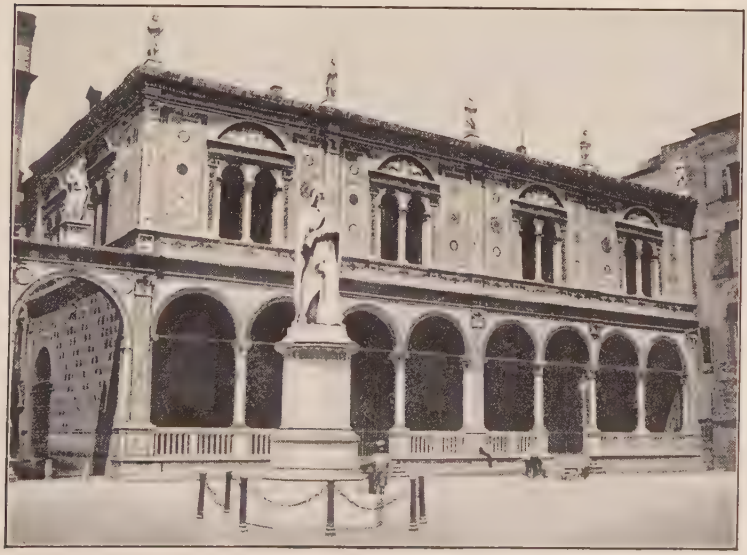
19. Moldings in Gothic architecture were varied and capricious, consisting almost entirely of boltels and fillets arranged in any convenient manner, without rule or regulation as to size or order of repetition. The parapet, either traceried or battlemented, surmounted the wall in place of a cornice, and possessed little projection except in military architecture, where it was supported on corbels with machicolations between. Vertical features were very marked, and buttresses, pinnacles, and turrets united in giving the effect of verticality.

Renaissance architecture presents its symmetrically molded cornice as one of the essential details of every building. Where several orders were used in different stories, a separate cornice marked each story, while a larger and bolder cornice overtopped them all at the roof line, as in Fig. 5 (*a*). These cornices were molded according to the classic models, but new combinations were introduced. The carvings were not restricted to the classic designs, but partook of the foliated independence of the Gothic period. String-courses and sill-courses are strongly emphasized, while vertical elements are broken or suppressed, the general effect being seen in the classic horizontal tendency of the lines.

ORNAMENT

20. Stained-glass decoration in the immense traceried windows was characteristic of the Gothic style. The human figure carved life size in niches and along the jambs of the portals gave scale to the buildings and details, so that their relative sizes were at once apparent. Color as an exterior embellishment was attained by the use of marbles or natural

(*a*)



(*b*)

FIG. 5

colored stones—never by artificial means. Carving was grotesque in character and crudely executed, but in the best examples, it was decorative in character and in harmony with the construction. Pinnacles, buttresses, and arches were richly embellished when required, but were never introduced unless the structural conditions demanded them.

Stained glass in the Renaissance was almost unknown. Opaque color was used for interior wall decoration, and elaborate frescos of religious and allegorical subjects, by the most prominent artists of the age, were introduced in all the principal buildings.

Graffito decoration, consisting of colored and roughly scratched plaster, as shown in Fig. 5 (*b*), was sometimes used on the exteriors. The human figure was rarely carved in its natural size, but was usually executed much larger. Architects of this period were frequently skilled painters, sculptors, and metal workers. Michelangelo, for instance, designed the dome of St. Peter's Cathedral, at Rome, painted the celebrated ceiling in the Sistine Chapel of the Vatican, and also executed many of the decorative sculptures that adorn the grounds.

21. In studying the Renaissance as it developed in each country, particular note should be made of the different influences that affected the style. With this period a more intimate knowledge is gained of the architects that are responsible for the designs. The influences under which these architects studied and worked affect the results quite as much as the climatic, religious, and political characteristics of the country.

In the 17th century, after the Renaissance style had become as servile an imitation of ancient Rome as possible, a reaction for originality set in and a lot of meaningless detail was introduced that caused a rapid decline in the style. Fronts of buildings were built on sinuous curves instead of straight, columns were placed in front of pilasters, and pediments were broken in the middle and sculptured figures placed within.

ITALIAN RENAISSANCE

22. Renaissance architecture in Italy may be divided into three separate styles of design, each partaking of the same general characteristics, but differing from one another according to differences of local influences.

FLORENTINE RENAISSANCE

INFLUENCES

23. Geographical.—Florence consisted of a group of cities made up of a central governing city and a number of smaller cities, over which the chief one held power.

24. Geological.—In Tuscany were quarries of granite and marble, and the monumental character of these materials affected the style in this community.

25. Climatic.—Florence being located in a bright and sunny country and quite warm during the summer, the windows in its buildings had to be made small.

26. Religious.—The Church, which was always a powerful factor in Renaissance architecture, was represented in Florence by Savonarola, a Dominican preacher and great reformer. His policy influenced the city materially, and although he was suppressed by the pope, his influence on the minds of the people continued to be felt.

27. Political and Historical.—The independent cities of Italy formed leagues during this period and one city ruled over the others. Pisa became subject to Florence in 1406, and the latter city soon became the dominating power in Italy, as well as the leading city in art and literature. In 1494, Charles VIII of France invaded Italy and took possession of Florence.

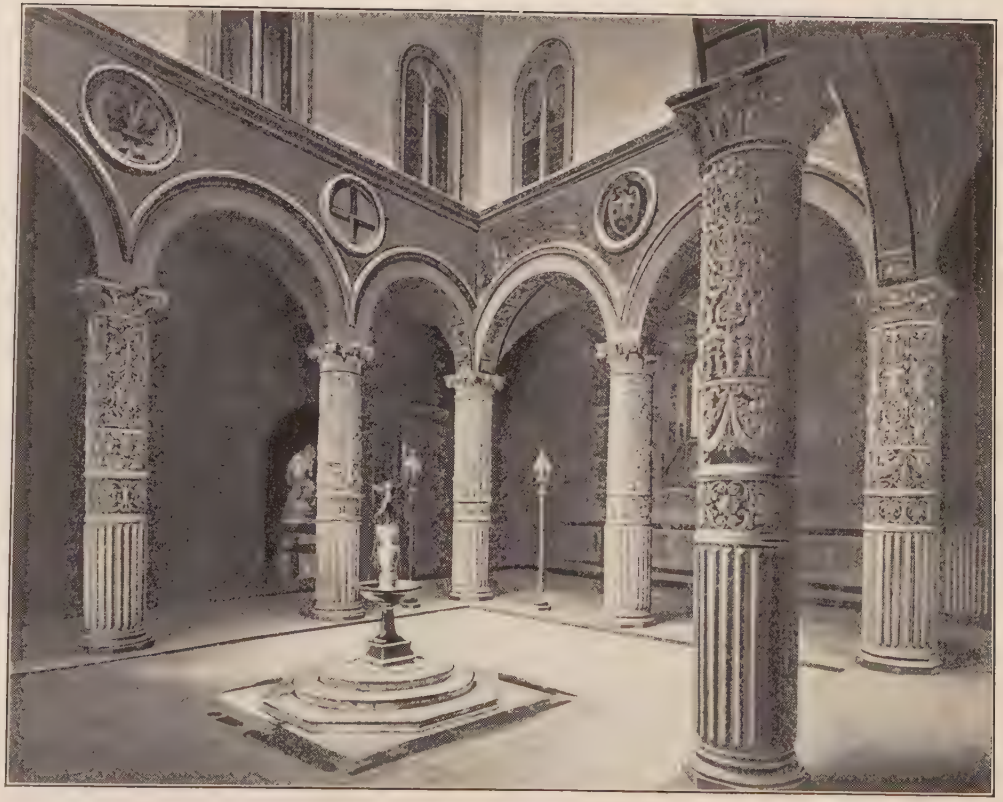


Fig. 6

CHARACTERISTICS

28. Florentine Renaissance palaces are usually built of massive blocks of rustic masonry, which gives them a fine, rugged dignity that characterizes the style. They are built around interior courts, the interior walls resting on columns and thus forming an arcade on four sides of the court, similar to the cloisters in the monasteries (see Fig. 6). There are no columns or pilasters on the exterior, and the façades in consequence are particularly severe. A massive cornice crowning the walls is the only exterior detail of a classic character, except where columns or pediments are used in the windows.

The Florentine school, or system, of Renaissance design is expressive of formidable dignity and structural severity on the exterior, but displays the most delicate appreciation of refinement and luxury in the treatment of the court elevations and the arrangement of the interior plan. Large rooms, high ceilings, and broad, unbroken wall surfaces, richly decorated with frescos and arabesque designs, are characteristic in all the Italian schools of Renaissance design, but in Florence particularly this interior treatment is to be seen at its best, on account of the omission of columns and pilasters as the principal feature of interior decoration.

29. There are three types of window: the *arched type*, in which a column divides the opening vertically and supports the ends of two smaller arches under a main rusticated arch, as in the upper stories of the Riccardi Palace, Fig. 1; the *architrave type*, where the sections of the openings are molded and a pediment, or cornice, supported on consoles covers the top, as in the lower story of the Riccardi Palace; and the *columnar type*, where a column, or pilaster, flanks each side of the opening and supports an entablature, or pediment, as in the Pandolfini Palace, Fig. 10.

EXAMPLES

30. The architectural examples in the Italian Renaissance style will be grouped under the names of the architects

FIG 7

that were responsible for the establishment of each particular style or school of design. As has been stated, many of these architects acquired their training under goldsmiths and painters, and the influences of this training is more or less evident in their works.

31. Brunelleschi.—Filippo Brunelleschi, who studied at Rome, built the dome over the cathedral at Florence. (See Fig. 36, *History of Architecture and Ornament*, Part 3.) This was the first use of the dome as an external feature. Although the dome is a classic detail and Brunelleschi gave much time to the study of the construction of the Pantheon and other buildings at Rome, the result of his work on the Florence Cathedral shows strong Gothic influences. The dome is octagonal in plan, is pointed instead of semicircular, and is supported on eight main ribs and sixteen intermediate ones.

32. St. Spirito Church.—The church St. Spirito was built on the plan of a basilica. The aisles were carried around the transepts and choir, as shown in the plan, Fig. 2 (*b*), and the building itself was covered with a wooden roof. The interior is interesting because it is probably the first in which the columns of the nave were placed under small, individual fragments of an entablature, from which the nave arches sprung (see Fig. 7). This feature became prominent in many later Renaissance interiors in other countries.

33. Riccardi Palace.—The Riccardi Palace, Fig. 1, completed in the year 1430, by Michaelozzo, a contemporary of Brunelleschi, was the first residence erected in the Renaissance style. It is an imposing structure with a rectangular façade two stories in height, standing over a massive basement, and crowned with a classic cornice of almost excessive proportions.

The general exterior appearance of these palaces is somewhat fortress-like and forbidding, but they were nearly always built around an interior courtyard, which was light

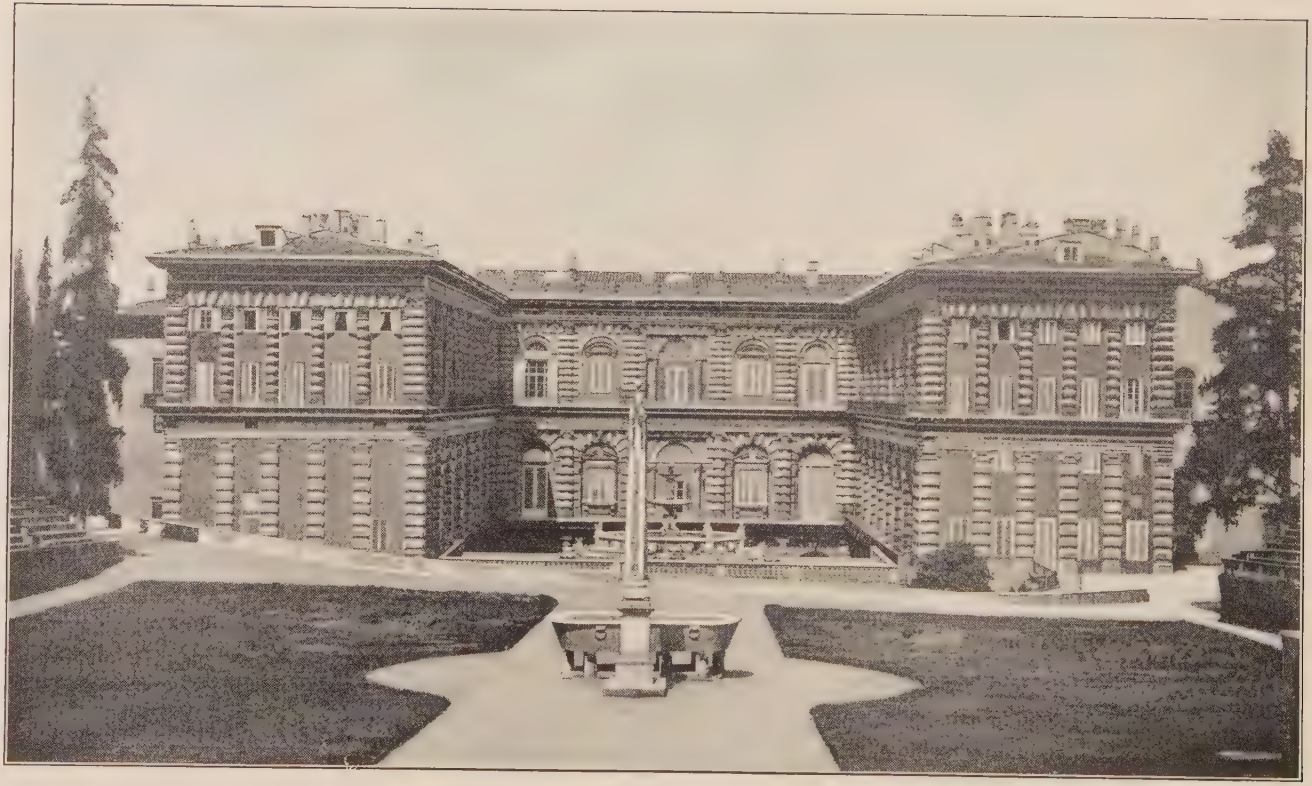


FIG. 8

and cheerful and was surrounded by a vaulted colonnade on three and sometimes on four sides. They afforded shady, open-air resting places within the palaces and added much to the comforts of the buildings as residences, besides materially enhancing their architectural effect.

34. Pitti Palace.—The Pitti Palace, Fig. 8, by Brunelleschi, embodies the same ideas on a much larger scale, but the cornice is too small for so massive a building. Here, the wall surface is broken by heavy rusticated pilasters in two stories, while the windows on the garden wings are small and unobtrusive. The windows on the court, however, are exceedingly wide, occupying, with their flanking columns and pilasters, the full space between the rusticated orders.

35. Leoni Battista Alberti was a deep student of classic literature, a writer, a poet, and a musician. He, with Brunelleschi, literally started the Renaissance style in Italy. He wrote a treatise on architecture that materially influenced the minds of his students and followers and did much to popularize the style. His design of the Ruccellai Palace is the first Renaissance building in which superimposed pilasters were used on the exterior. This structure is lighter in style and more refined in character than the Pitti Palace (Fig. 8) of Brunelleschi, but the crowning cornice is so much smaller in comparison to the front of the building that much of the dignity of the composition is lost.

36. Church of St. Andrea Mantua.—St. Andrea Mantua, the plan of which is shown in Fig. 2 (*a*), is important as a type from which many Renaissance churches were modeled. It possesses no aisles, but its broad nave is crossed by a transept, and chapels alternating with entrances are grouped along the sides. The nave is covered with a coffered ceiling in the form of a barrel vault springing from a classic entablature supported over Corinthian pilasters. The pilasters stand on pedestals and continue into the transept. Over the intersection of the transept and nave rises a magnificent dome on a tall drum, which is pierced with windows to light the interior.

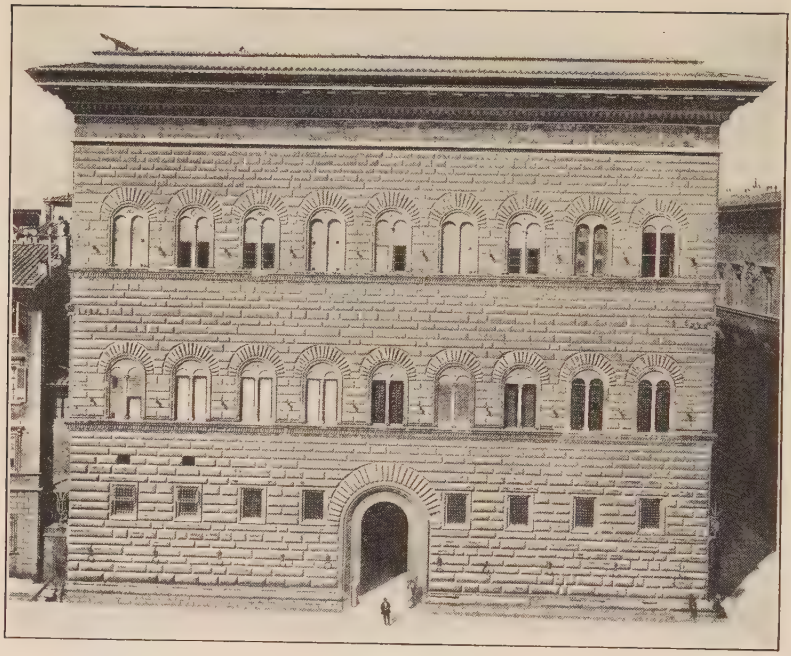


FIG. 9

FIG. 10

37. Strozzi Palace.—The Strozzi Palace, Fig. 9, erected in 1490, may be taken as a typical example of the Florentine style of Renaissance design. The windows of the first story are protected by heavy iron gratings, while the entrance is guarded by a heavy iron gate.

This fortress-like arrangement is due to the fact that these palaces were part castle and part residence. During the frequent local wars of this period, it was often necessary for the nobility to retire within their palaces and defend them against the attack of an invading army. The exterior was therefore made very formidable, not only in appearance, but also in fact, while the elevations on the court present an appearance much more in accordance with the idea of domestic life and household comforts.

The broad entrance door in the center of the façade was a carriage entrance, or driveway, into the court, and from this court, under the shade of the surrounding arcade, several doorways gave access to different parts of the palace. The upper stories of the building, though executed in the same style of heavy rustic ashlar, were provided with more liberal arched window openings, which were divided by a central columnar mullion and two smaller arches extending from the mullion to the jamb on each side.

38. Pandolfini Palace.—The Pandolfini Palace, Fig. 10, designed by Raffael, was built over half a century later than the Riccardi. The rusticated work is here confined to the portal and the quoin stones on the angles. Classic details appear on the exterior of buildings about this time, and in this example take the form of pilasters at the sides and of pediments over the window openings, while a pedestal supports the sill.

39. Court of Vecchio Palace.—The court of the Vecchio Palace, Fig. 6, was remodeled in the 16th century, when the Renaissance was approaching its most classic period. The columns surrounding the open central space were elaborately carved and ribbed, while the soffits and side walls were painted in elaborate and brilliant designs.

ROMAN RENAISSANCE

INFLUENCES

40. Geographical, Geological, and Climatic.—The geographical, geological, and climatic influences of the Roman Renaissance period are the same as those of Central Italy under the heading Italian Romanesque, *History of Architecture and Ornament*, Part 2.

41. Religious.—Charlemagne in 773 A. D. had confirmed the temporal power of the pope by defending him against the Lombards. The Lombards had been defeated by Pepin, the father of Charlemagne, and their territory, known as Lombardy, had been turned over to Pope Stephen III. In return, Charlemagne was crowned by Pope Leo III as Emperor of the Holy Roman Empire. The successors of Charlemagne inherited the title of emperor and they evidently intended to transform the title into real authority; whereas, the later popes insisted on the independence of the papal states, which was finally acknowledged by Emperor Rudolf I of Hapsburg.

In 1378, great scandal in the church was caused by a dispute over the election of the pope. Each of two rival candidates claimed to be elected, and one established himself at Avignon, France, while the other maintained his papal palace at Rome. This period is known in church history as the "Great Schism." The dispute was ended in 1415 by the general recognition of the Roman Pontiff, after which the popes assumed a very important temporal position as Italian princes, and during the 15th century, they greatly extended their possessions in Italy. A great palace was erected for them and was called the Vatican. At the present day, the Vatican is probably the most extensive palace in the world, containing as it does some twenty courts and 11,000 rooms, halls, and apartments. The popes were great patrons of literature and the arts and encouraged the erection of palaces and churches, the decoration of which

was entrusted to such painters as Raffael, Michelangelo, and others. A school was established for artists and artisans, who afterwards did much for the spread of the Renaissance both at home and abroad.

42. Political and Historical.—As a central government was recognized at Rome, fortified palaces were not necessary as in Florence. Rome was the center of the old classic traditions, and the remains of such structures as the Colosseum, the Pantheon, and the Fora gave impetus to the revival and at the same time furnished material for building purposes.

CHARACTERISTICS

43. As the Renaissance advanced, it was inevitable that the constant study of Roman architecture should lead to a closer imitation of classic details and eventually to an absolute copying of antique designs. Toward the close of the 15th century, correctness in the rendering of the ancient Roman forms came to be considered the chief of architectural virtues, and the orders became the principal resource of the architect. Externally the orders were freely used in the decoration of doors and windows and of the court arcades of the palaces. Frames around these openings and pediments over them were extremely elaborate, and cornices and moldings were profiled with the utmost care, while the balustrade was elaborated into a most intricate and ornate device, but always on strictly classic lines. This period started in Rome with the erection of St. Peter's Church and continued until a complete transformation was effected throughout the city.

The façades and courts of the buildings were designed as nearly as possible in the old classic style. The orders were used freely but without excessive elaboration, in consequence of which the Roman palaces present an effect of most dignified simplicity. An attempt at unity in design was developed later, when buildings were treated to appear as one story with pilasters extended the entire height of the

front, including two or three stories, and crowned by an entablature, including an attic story, as shown in Fig. 3. Superimposed orders were rarely used, and arched openings were sparingly introduced, except in tiers of arcades, as shown in Fig. 11, after the style of the Colosseum.

EXAMPLES

44. Bramante.—The first architect of note in the Roman Renaissance was Bramante, who was born in 1444, the year that Brunelleschi died. He was educated as a painter and was probably a pupil of Alberti. Though born in Florence, Bramante studied at Rome and his first practice was in Milan.

45. Raffael was a nephew of Bramante and was engaged on many buildings in and around Rome. He painted many interiors and executed the designs for the Pandolfini Palace, although it was not erected until 10 years after his death.

46. Bramante had many pupils and followers. Among them was Baldassare Peruzzi, who designed many buildings in Rome. His work was prominent for its finished detail in plan and elevation. He built the Mossimi Palace and the Villa Farnesia.

Antonio di Sangallo, another pupil of Bramante, erected the Farnese Palace, Fig. 4, which is considered a masterpiece of the Roman Renaissance.

47. Michelangelo, born in Florence, in 1475, was educated as a sculptor and painter. He executed many statues at Florence, and was called to Rome, in 1505, to execute the designs for a mausoleum for Pope Julius II. Later, he executed a bronze statue of the pope, which was erected at Bologna, and in 1508 he returned to Rome and painted the ceiling of the Sistine Chapel in the Vatican, a work that required many years. This decoration represents scenes from the creation surrounded by elaborate architectural settings, all painted in perspective to appear in relief. Late in life, Michelangelo turned his attention to

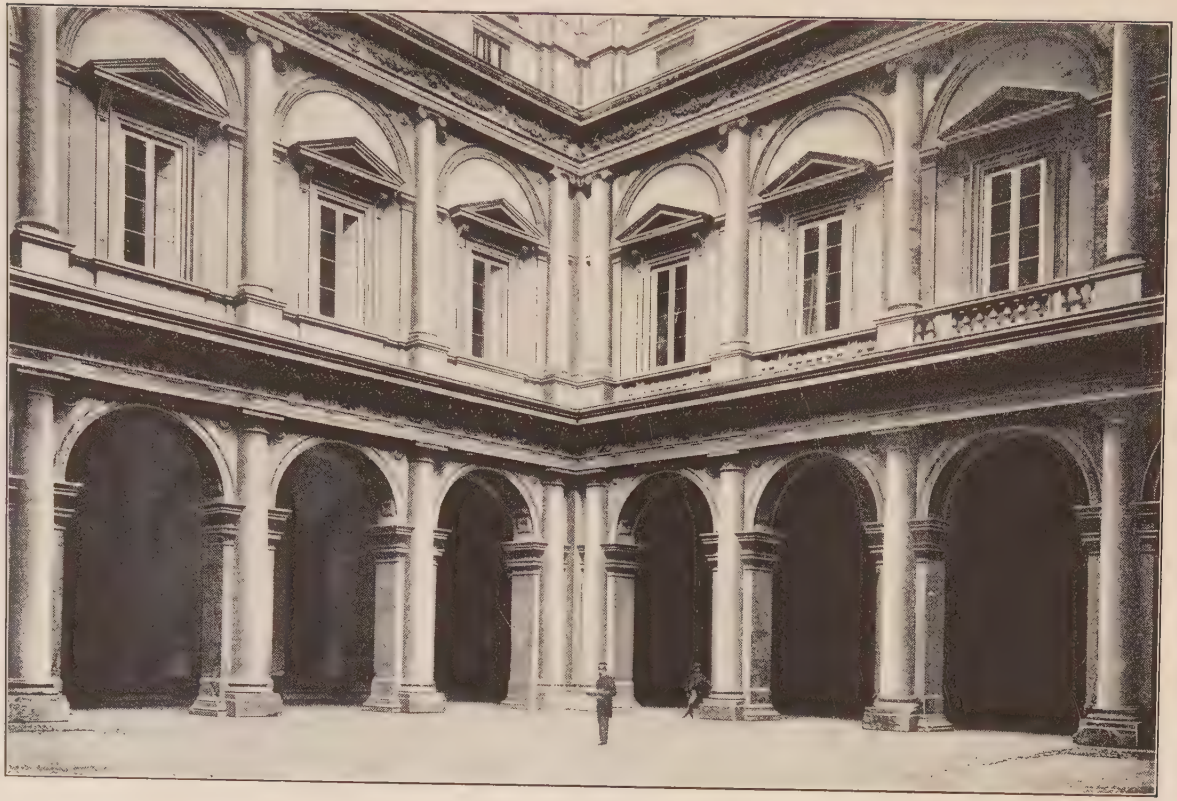


FIG. 11

architecture and among other buildings designed by him are the dome of St. Peter's, palaces of the capitol, the mausoleum at Florence, and the Laurentian Library at St. Lorenzo.

48. Vignola.—Giacomo Barozzio de Vignola was the author of a work entitled "The Five Orders of Architecture," which has been translated into nearly every language and which, as a universal authority on the Roman orders, did much to familiarize other students with classic details.

Up to the time of Vignola, the revival of classic art had succeeded in banishing every Gothic detail from Italian architecture, but the architects had not consented to a servile imitation of classic buildings. They were endeavoring to develop a new style as pure and elegant as the classic, but on the whole quite different from it. Vignola and his contemporary, Palladio, after pursuing a long and enthusiastic study of the old classic ruins and details, arrived at the conclusion that the classic style was the only true style and that it could not be copied with too great minuteness. Consequently, they measured the details and proportions of the ancient orders, and reduced architectural design to a problem in mathematics.

In Vignola's book on the five orders, not only did he fix the exact proportion of every detail and the profile and arrangement of every molding, but he established rules for the arrangement and proportions of superimposed orders and fixed on the Renaissance those principles which gave it a distinctive character. At the same time, however, he assured its eventual decay, as the human mind cannot be satisfied without progress, and when the main considerations of design are fixed with mathematical precision, designers will create all sorts of frivolous details in the effort to produce originality of effect. According to the rules of Vignola, superimposed columns were to be used in a fixed order from Doric to Composite, colonnades were to be spaced in certain fixed terms of the diameter of the columns, and no details not found in the ancient monuments were to be included in a design.

FIG. 12

49. St. Peter's at Rome.—Bramante, the first architect of St. Peter's, proposed to combine, in one design, the great dome over the Pantheon with the vaulting of the Basilica Maxentius (see Figs. 75 and 78, *History of Architecture and Ornament*, Part 1), and thereby erect a building that should exceed in size, elaboration, and structural complexity, any ecclesiastical edifice ever erected. The foundation for this great church was laid by Pope Julius II, on the 18th day of April, 1506. Bramante died 7 years later, but the building was continued at irregular intervals, under different architects until the year 1546, when Michelangelo was assigned to the work by Pope Paul III. Michelangelo completed the building with the exception of the dome, which was finished after his death in 1564, by Fontana. Michelangelo left a plaster model of the dome, from which it was completed according to his design. This dome is 140 feet in diameter and is poised on the top of a circular colonnade; it rises to a height of 405 feet above the church floor. As left by Michelangelo at the time of his death, St. Peter's was as harmonious a design as existed in the Renaissance style, but in 1606 the nave was lengthened, under orders of Pope Paul V, and the proportions were destroyed, as the dome became hidden on close approach, and the façade was tasteless and insignificant. (See Fig. 12.) The magnificent atrium, surrounded by the double colonnade, which was added by Bernini, in 1667, gives dignity to the approach, but does not compensate for the weakness of the design of the main façade.

50. St. Peter's is the largest church in existence. The central aisle, nearly 600 feet long and 83 feet wide, with its splendid paneled and gilded vault, together with the central space under the majestic dome presents one of the most majestic conceptions of the Renaissance. This interior, as shown in Fig. 13, however, is too gaudily colored for so stately a design. Elaborate carvings, brilliant frescos, and expanses of burnished gold are more suggestive of the interior of a pagan temple than of a Christian basilica, and

Fig. 13

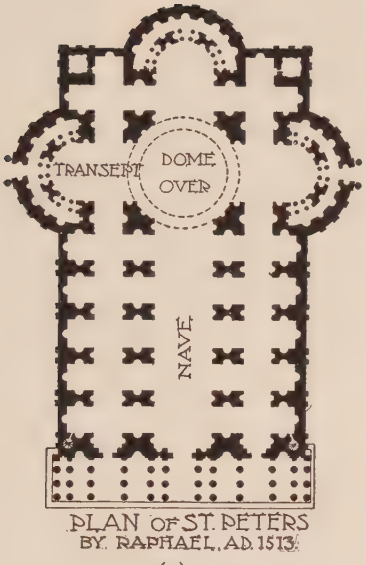
reveal the decline in taste toward the end of this great period, of a style that, borne on a tidal wave of popularity, swept over Europe and exhausted itself in the constant effort to approach a false ideal. At the advent of the Renaissance, the architects were compelled to exercise much ingenuity in order to combine the classic and Gothic forms, but with advanced study, their ingenuity declined and the practice of a servile copying of classic forms resulted.

St. Peter's Church is noble in its proportions, majestic in its conception, and gorgeous in its decorations, but at the same time its coloring is gaudy, its design is servile, and its style is inappropriate as a monument to the Christian faith.

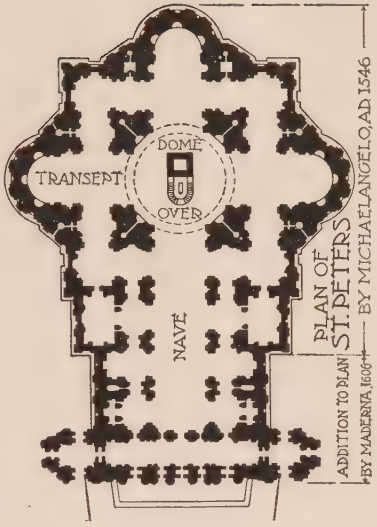
51. St. Peter's Cathedral at Rome was the most important building erected during this period, and many architects were engaged on the work. In 1506, Bramante made the first design, which presented a plan in the form of a Greek cross domed over at the intersection of the arms, similar to the Byzantine plans. In 1513, Sangallo and Raffael were engaged to superintend the work, but a year later Bramante died, and in 1520 Raffael died, and in 1536 Peruzzi, who was appointed to succeed Bramante, also died. Before Raffael's death, a division of opinion had arisen as to the advisability of changing the Greek-cross form to a Latin cross, Raffael favoring the latter [see Fig. 14 (*a*)].

In 1536, Antonio di Sangallo succeeded as architect, and presented a revised plan with a central dome, many orders, and a lofty campanile, Fig. 14 (*d*). Sangallo died in 1546, and Michelangelo was appointed architect. He rejected the plans of Sangallo, restored the design to the Greek cross, and simplified the aisles, thus destroying entirely the scheme of Raffael to give scale to the interior.

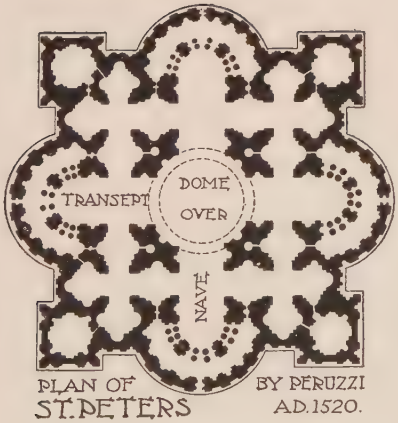
Michelangelo completed the design for the dome and executed a model of it (see Fig. 15). The drum of the dome was finished at the time of his death, in 1564, and the dome itself was carried out in accordance with Michelangelo's model by Giacomo della Porta and Domenico Fontana.


TRANSEPT
DOME OVER
NAVE
PLAN OF ST. PETERS
BY RAPHAEL, AD. 1513.

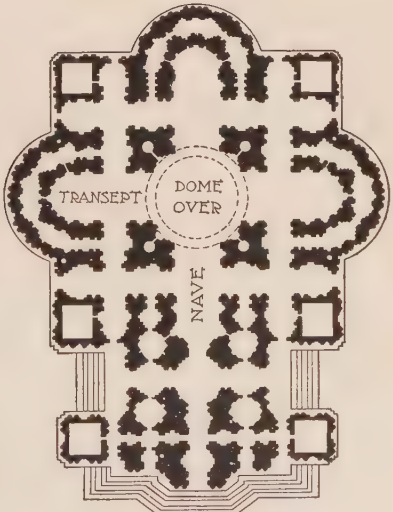
(*a*)


TRANSEPT
DOME OVER
NAVE
PLAN OF ST. PETERS
BY MICHAELANGELO, AD. 1546
ADDITION TO PLAN BY MADERNA, 1606

(*b*)


TRANSEPT
DOME OVER
NAVE
PLAN OF ST. PETERS
BY PERUZZI
AD. 1520.

(*c*)


TRANSEPT
DOME OVER
NAVE
PLAN OF ST. PETERS
BY SAN GALLO, AD. 1550

(*d*)

FIG. 14

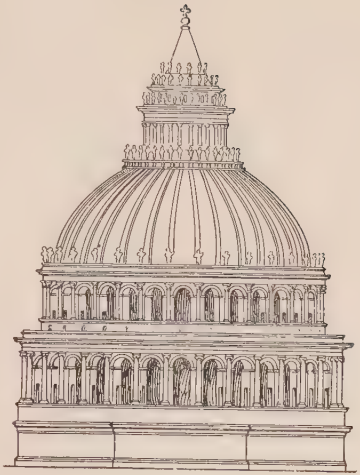
Vignola was appointed architect after Michelangelo's death, and added the cupolas on each side of the dome.

In 1605, Carlo Maderno lengthened the nave to form a Latin cross and erected the present insignificant façade. Finally, in 1624, Bernini erected the colonnade enclosing the plaza.

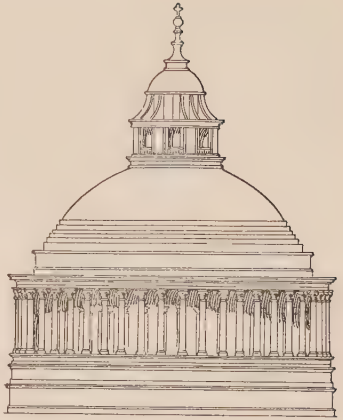
52. Church of St. John Lateran.—The church of St. John Lateran, in Rome by Galilei, erected in 1734, Fig. 3, shows on its exterior the application of the orders in excessive proportions, as first practiced by Palladio at Vicenza. The design is a very powerful one, however, combining, as it does, a colossal order with two smaller orders in superposed loggias. The composition is marred by the excessive size of the statues which crown it, but, taken all together, this façade may be considered as one of the masterpieces of the later Renaissance. The portico is 33 feet deep and 196 feet long, and the open loggia above it is one of the finest in Rome.

53. Roman Palaces.—The palaces of Rome are classed among the finest in Europe. Their design is not so heavy as those of Florence, nor so delicate as those of Venice, but the architects of the Roman Renaissance period have, by means of a diligent study of the ancient monuments, reproduced in the palatial residences of their aristocrats the most imposing features of the tombs and temples of their pagan ancestors.

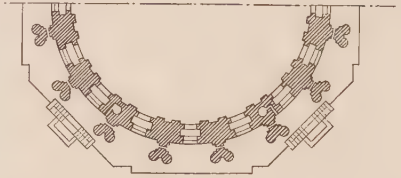
Roman palaces were usually of great size and were built around large courts, with arcades of classic model in two or three stories. On the street front, the structures were crowned with a rich cornice proportioned to the height of the building, in the relation of entablature and column. The orders themselves were used but rarely on the exterior, and effect was obtained by careful proportioning of the stories and in the form and distribution of the openings. The first story was given up to suites of sumptuous apartments, elaborate halls, reception rooms, etc., the walls and ceilings of which were decorated with magnificent frescos by the



BY SANGALLO.



DESIGNS
FOR THE
DOME OF ST. PETER'S.



PLAN OF PERISTYLE OF EXISTING DOME
BY MICHAELANGELO.

PLAN OF PERISTYLE BY BRAMANTE.

Fig. 15

greatest painters of the day, and groups of statuary and bas-reliefs were disposed in the courts and vestibules and in the wall niches of the principal rooms of these princely dwellings.

54. Farnese Palace.—The finest of the palaces, the Farnese, built by Sangallo in 1530, is shown in Fig. 4. It is an immense building, 260 ft. × 192 ft., whose rectangular plan and simple elevations are given dignity and impressiveness by the careful proportioning and arrangement of the window openings and by the treatment of their details. The lower story is very plain, consisting merely of a row of square-headed openings in a plain masonry wall surface, which is relieved at the center by an immense carriage entrance to the beautiful court within. The windows in the upper stories are flanked each side by three-quarter columns, which support a pediment over each opening, and the whole structure is surmounted by a magnificent cornice, designed by Michelangelo, which is worthy of its position on the finest palace in Rome.

55. The interior court of the Farnese Palace, Fig. 11, is a magnificent enclosure over 125 feet square and is surrounded on four sides by a deep colonnade, over which the second story of the palace extends. The colonnade is somewhat on the style of the Colosseum (see Fig. 83, *History of Architecture and Ornament*, Part 1), with its half columns supporting an entablature, but the projecting imposts impair the composition in the first story, as they have the appearance of cutting into and weakening the columns. Like all the Renaissance palaces, the court elevations of the Farnese are considerably more elaborate than the exterior fronts, but the simple treatment of the entire design places it in the lead as one of the most successful buildings in the Renaissance style.

56. Giraud Palace.—The Giraud Palace, Fig. 16, is one of Bramante's later works, in which the orders are introduced in the second and third stories. The basement, however, is plain and severe, somewhat after the style of the Florentine palaces.

Fig. 16

FIG. 17

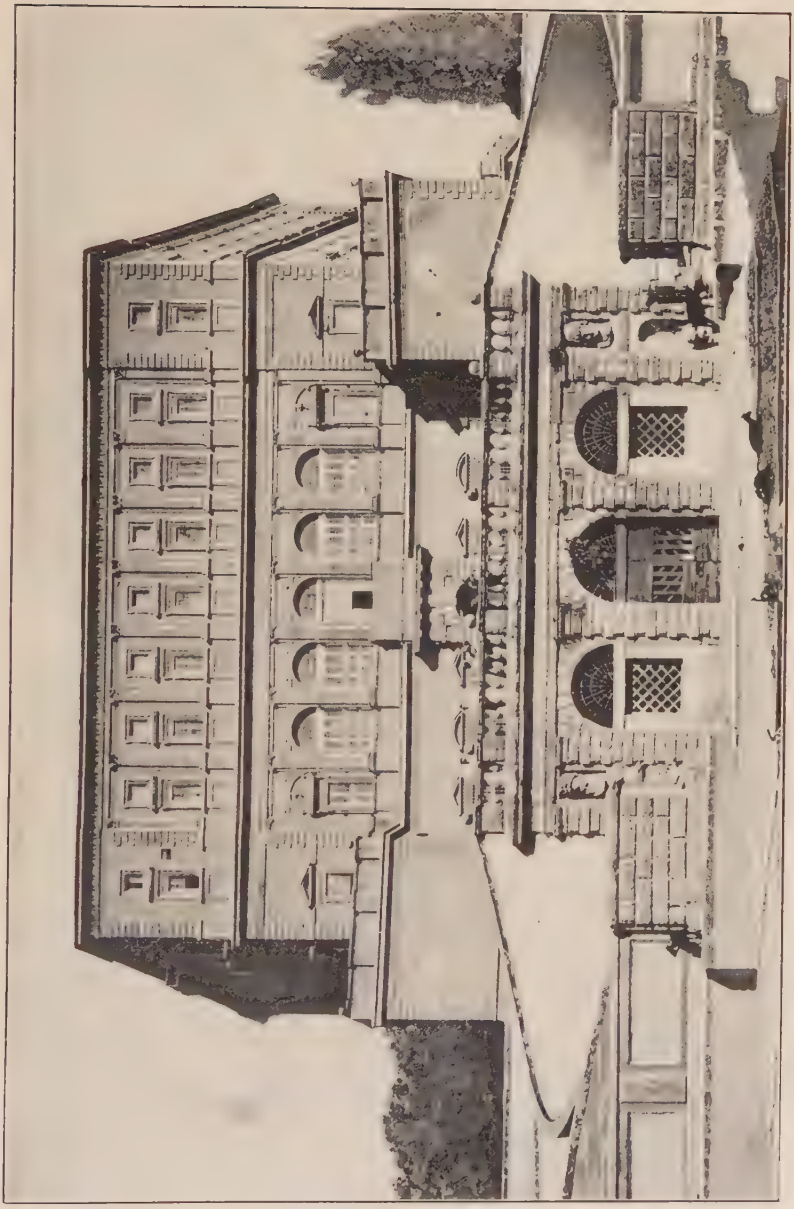


Fig. 18

57. Cancellaria Palace.—The Cancellaria Palace, Fig. 17, has the characteristic court surrounded by a colonnade, but in this case the colonnade is carried out through two stories. The upper story supports an attic in which pilasters face the walls over the columns below in superimposed orders according to the rules of Vignola.

58. Palace Caprarola.—Vignola's greatest work was undoubtedly the Palace Caprarola, Fig. 18, about 30 miles from Rome. The plan was pentagonal in outline, enclosing a circular court. Each of its five sides was 130 feet long and 90 feet high, while the court was 65 feet in diameter. This pentagonal form of plan was used to give the palace a fortress-like appearance, as all citadels at that time were pentagons. Above the terrace on which it is built, the palace rises in two grand stories of orders, the lower one being arcaded and the upper one including two stories of windows. Vignola also designed many other important buildings in Rome.

59. The Villa Medici.—When these palaces were built on the outskirts of the city, or beyond the municipal limits entirely, the courts were sometimes dispensed with, and great care was given to the laying out of a park or garden on one side of the palace, which should afford a pleasing outlook from the principal rooms.

In Fig. 19 is shown the garden front of the Villa Medici, erected in 1540 by Lippi. The entrance, with its central arched and flanking trabeated openings and its supporting columns, is a typical detail of the Roman school of the Renaissance, which was much copied in many subsequent buildings erected in other countries. The walls of this façade are tastefully decorated with numerous bas-reliefs of allegorical subjects, and are indented with niches for the reception of statues and busts. The window openings are few and comparatively small, as they face the southwest and the rays of the tropical sun are not desired within. This lack of windows accounts for the surface decoration of the walls proper and the consequent originality of the design.

FIG. 19

VENETIAN RENAISSANCE

INFLUENCES

60. Geographical.—The importance of Venice was always due to her geographical position being especially advantageous to Oriental trade. This trade brought wealth and consequently architectural development.

61. Geological.—Venice is practically built over the water instead of over the land. Its palaces and churches are erected on piles driven in a shallow lagoon, and the means of communication being through canals instead of streets, it presents an entirely different condition from any other community. The structural problem beginning at once with the peculiarity of foundations had an important influence on the design of its edifices.

62. Climatic.—The climatic conditions favor an outdoor life, as Venice is very warm in summer, though tempered by sea breezes; yet it is sufficiently cool in winter to require artificial heating of interiors. The former condition tends to the picturesque treatment of the façades, as they are reflected in the canals, and the introduction of much color, while the latter renders the roof treatment more conspicuous in chimneys than is found in other Italian cities.

63. Religious.—Venice was more independent of the pope than other cities, and always maintained a strong loyalty to the state. Tolerance of religious forms in Venice is evidenced by the erection of a Greek church during the Renaissance period.

64. Political and Historical.—During the 15th century, Venice conquered the surrounding country and appointed Venetian governors, thus strengthening her republican form of government. Many wealthy families arose to prominence and a great rivalry existed in the erection of handsome palaces along the Grand Canal. These palaces were not

(*a*)

(*b*)

FIG. 20

fortresses as in Florence, but were the residences of prominent citizens that had acquired greath wealth through Oriental trade and manufactures.

In 1453, Constantinople was taken by the Turks and the Oriental trade was undermined. In 1486, the new route from Europe to India was discovered by Diaz and much of the Indian trade was thus diverted to Portugal. As a result of this, Venice was at war with the Turks throughout the 16th century, and eventually all her possessions, except Northern Italy, were taken from her.

CHARACTERISTICS

65. The Renaissance movement affected the architecture of Venice very differently from other Italian cities. The Venetians had developed a very beautiful architecture during the Gothic period, and being more isolated from Rome, they were not so much influenced by classic traditions as were the people of nearer cities like Florence. Therefore, instead of adopting the classic forms at once, there was a period of transition, during which the two styles were mingled.

The architecture of Venice was of a lighter character than the rustic styles of Florence or the severely classic styles of Rome. Columns and pilasters were used freely, but the windows were arranged in groups instead of being evenly distributed across the façade. A favorite grouping was one where the openings were arranged in the middle of the front with considerable areas of flanking wall on each side, as in the lowest stories of the buildings shown in Fig. 20. The façades were comparatively flat, owing to the scarcity of land and the frontage being on the line of the canal, but monotony was avoided by the grouping of the windows, the introduction of projecting balconies, and the subdivision of the stories by cornices and balconies.

Late in the period, Venice, like other cities, followed the classic proportions of Vignola very closely and introduced little detail or decoration that did not have a classic model as its prototype.

219 FIG. 21

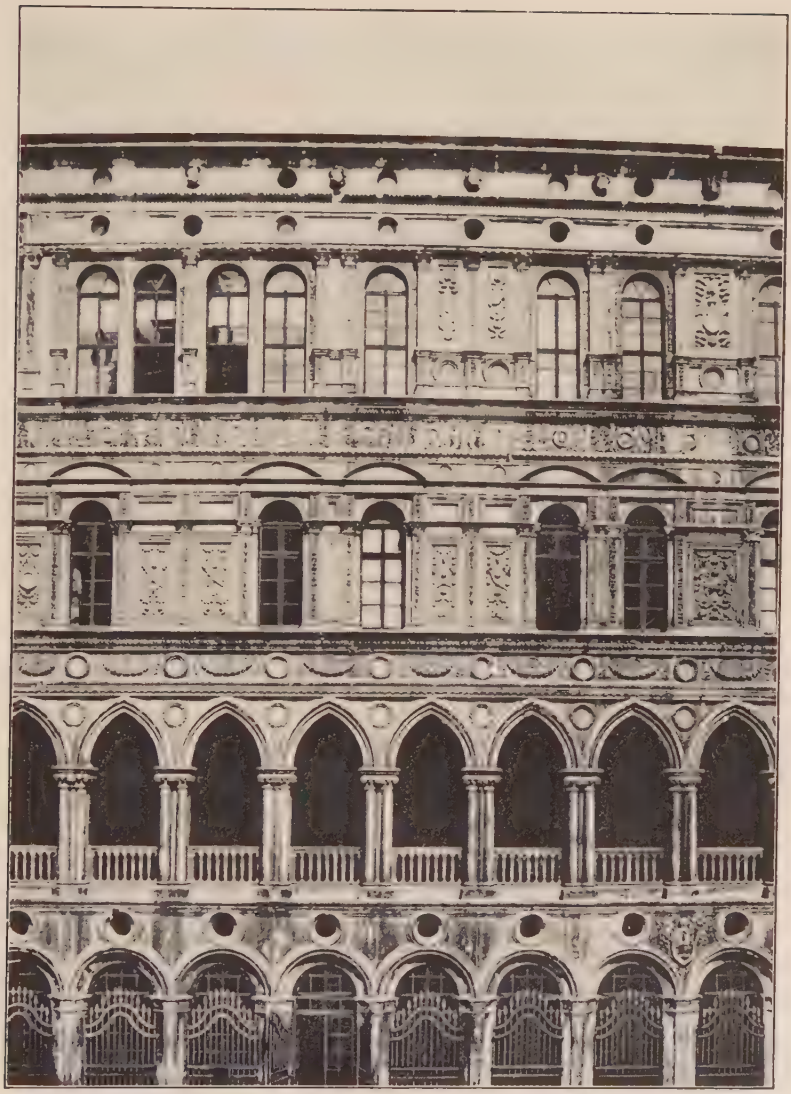
EXAMPLES

66. Venetian Architects.—The principal architects of the Venetian school were Sansovino and his immediate successors. Sansovino built the staircase in the court of the Ducal Palace, Fig. 23, the Zecca, or Mint, and the church of St. Georgio del Greci. He commenced the library of St. Mark, Fig. 21, but this structure was finished after his death by one of his successors.

Sansovino was succeeded by two rivals, Scamozzi and Palladio. The former finished the library of St. Mark and erected numerous churches and palaces. He possessed little originality, however, and Palladio, with his transcendent talent, finally obtained the lead.

Palladio was an author as well as an architect. He carefully measured the Roman antiquities and published drawings of them in a book on architecture, which did much to influence other European designers. His designs were mostly erected in brick and stucco, the lower story being rusticated, as in the Florentine examples.

67. Ducal Palace.—The great undertaking of this age was the rebuilding of the court of the Ducal Palace, Fig. 22, by Antonio Rizzo, in 1486. The lower story is particularly pleasing. The piers are octagonal prisms, in the faces of which panels are sunk, thus giving lightness to the details without detracting from their strength. The pointed arcade in the second story is not so pleasing, and shows how the lingering traditions still affected independent Venice, when Rome had given herself up entirely to the classic revival. The upper stories are characteristically Renaissance. The broad belts of friezes carved in ornamental sculpture cease to appear as copies of classic forms and readily proclaim themselves as ornamental wall spaces between the stories. The pilasters flanking the windows are not the pilasters of ancient Rome, but a Renaissance development that is ever appropriate to its plan. The giant stairway, Fig. 23, was completed by Sansovino, in 1554.



221 FIG. 22

68. Library of St. Mark.—The library of St. Mark, Fig. 21, commenced by Sansovino in 1536, is undoubtedly the masterpiece of this architect. It consists of an open arcade in the Doric order on the ground floor, above which is an Ionic arcade under an entablature of most exaggerated proportions. This was necessary in order to permit the frieze to be pierced with a range of small windows. There seems also to be too great a profusion of sculptured ornament, but notwithstanding these defects, there is a grandeur in the range of its twenty-one arches and the boldness of its crowning members that is impressive. This structure is 270 feet long on the plaza facing the Ducal Palace and is 45 feet deep on the end shown in Fig. 21.

69. Vendramini Palace.—The Vendramini Palace, Fig. 20 (*a*), commenced in 1481 by Lombardo, is one of the most beautiful palaces in Venice. It is one of the earliest buildings in Italy where engaged columns are used to divide the façade. The lines of its composition are vigorous and stately, and its broad arched and mullioned windows, separated by engaged columns, established a type of large-windowed and vigorously modeled façades that later architecture developed but never surpassed. The treatment of the arched heads of the windows is suggestive of Gothic influence, although the mullions and other columns are derived directly from Roman models. The grouping of the windows toward the center of the building and leaving a flanking wall mass on each side, is a typical Venetian feature, which is also traceable in some of the Gothic designs.

70. Cornaro Palace.—The Cornaro, Fig. 20 (*b*), commenced in 1532 by Sansovino, is similar to the Vendramini Palace. However, the openings are smaller and the first story is higher, and is built of rusticated stonework somewhat after the Florentine style.

71. Pesaro Palace.—The Pesaro Palace, Fig. 5 (*a*), designed by Longhena, in 1650, is a most dignified composition, although there is no doubt that the façade is overornamented. It belongs to the later period of the

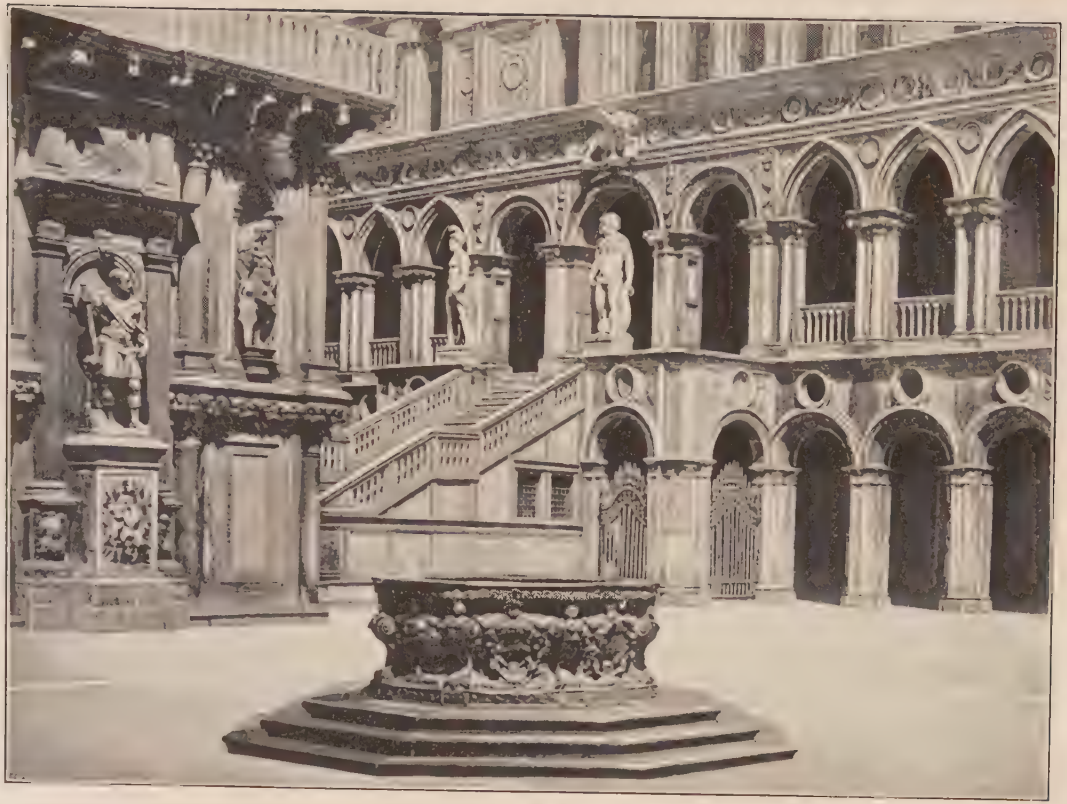


Fig. 23

Renaissance, when the variety that could be obtained through a close imitation of the classic system of design was nearly exhausted and originality was sought in the application of ornament in new and fantastic shapes. But even allowing that the design is not in the best taste, there can be no doubt that it was the residence of a wealthy nobleman, and taken as a whole, it is a singularly picturesque piece of architecture.

72. Palazzo del Consiglio.—The Palazzo del Consiglio, or council hall, at Verona, Fig. 5 (*b*), by Fra Giocondo, is a characteristic structure erected about 1500. It consists of an open arcade, over which are walls of plaster and stucco richly decorated in graffito work.

73. Church of St. Maria della Salute.—The church of St. Maria della Salute, Fig. 24, commenced by Longhena, in 1532, is beautifully situated on the Grand Canal. The plan of this edifice is octagonal, with chapels extending on each side. The central space is covered by a dome standing on a high drum, which is connected with the outer walls by buttresses that extend over the aisles and thus add to the richness of the exterior effect. A smaller dome covers the chancel, and a square tower with a domical roof adds variety and repose to the structure. The ornament is elaborate and presents many of the faults that characterize the latter part of the Renaissance style. Architects became tired of designing façades that consisted simply of architectural orders laid out with mathematical precision. In the endeavor to produce something new, the classic details were subjected to all sorts of indignities. Columns were designed with spiral twistings, capitals were composed with cupids and allegorical figures supporting the abacus. Large brackets or consoles from the cornice of the Corinthian order were introduced as buttresses, and smaller ones as keystones, and in the attempt to express original ideas with classic details, all care for the propriety of these details was overlooked. This was termed the Rococo period of the Renaissance and marked the decline in all countries where the style developed.

225 FIG. 24

ANALYTICAL STUDY

PLANS

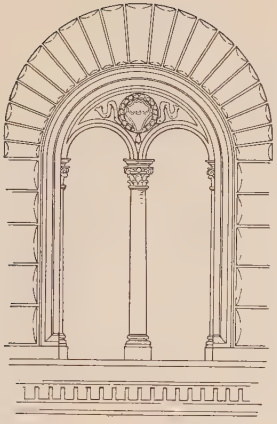
74. The plans (see Fig. 2) in the Florentine school were extremely simple, consisting of a number of apartments grouped around an interior court. Stairs were closed between walls and were usually vaulted over. In Rome, the plans were more varied and on a grander scale, and elliptical and circular stairways supported on columns are characteristic. In Venice, the canals required that the plans present a straight front. Stairways well in the central part usually opened on a court.

WALLS

75. In Florence, rusticated walls with a dominant projecting cornice were characteristic. No exterior pilasters or columns were used, except as details of window treatment. In Rome, pilasters, two or more stories in height, supported a cornice that crowned the walls, and the window openings were treated as simple piercings through the wall curtain. Early in the style, however, the walls were left plain, with rustications at the angles and pilasters or columns in the first story only. In Venice, columns were used freely in each story, with an entablature for each, and little wall space was exposed. The general treatment approached the Roman imperial style as exemplified in the Colosseum.

ROOFS

76. Over galleries and passages semicircular vaults were used in Florence, and these were richly decorated. In church work, the dome was introduced over the crossing and the nave vault was coffered, as in the Pantheon at Rome. Tiles were used on the exterior and were sometimes visible, but usually the pitch was too flat for them to show. In Rome, coffered vaults were used for interior effect, but the exterior roofs were rarely visible. Domes



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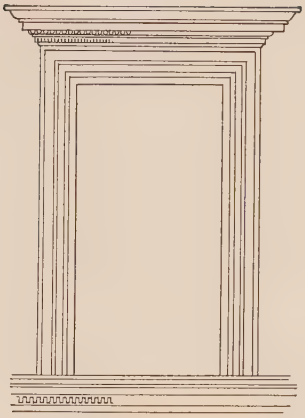

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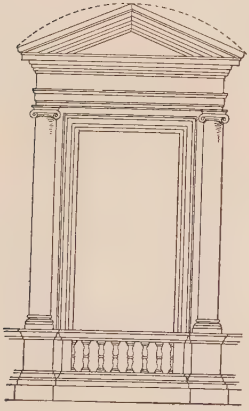

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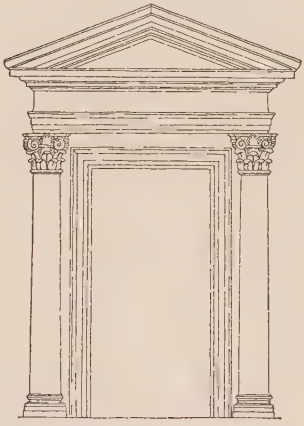

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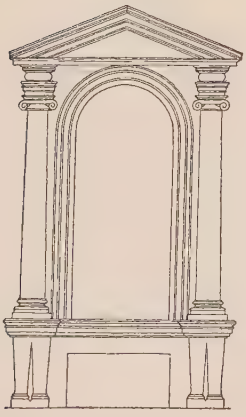

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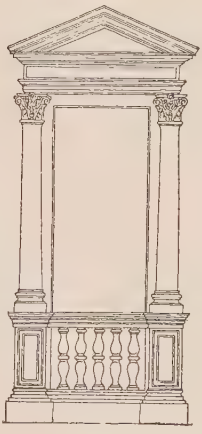


(*f*)

FIG. 25

mounted on a high drum and crowned with a lantern became characteristic of all churches of the period. In Venice, a balustrade was carried above the upper cornice and the roof behind it was given only sufficient pitch to shed the rain.

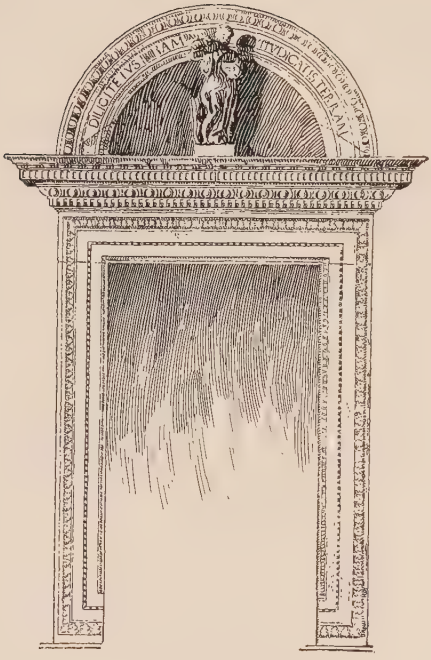
COLUMNS

77. In Florentine Renaissance, columns were used only for arcaded passages or for courts, and not as elements of wall treatment, as in the Vecchio Palace, Fig. 6. In Rome, pilasters were used on a gigantic scale across the front of the buildings, and all the details are designed in proportion to these pilasters as an order, and not in proportion to the scale of the building itself, as in St. John Lateran, Fig. 3. In Venice, columns were used in arcades, as in the Colosseum, and the entablature was broken out over them and then back along the wall space between, as in the Pesaro Palace, Fig. 5 (*a*).

OPENINGS

78. Windows in Florence were small and widely spaced. The early examples usually possessed semicircular heads and were divided by a columnar mullion carrying two minor semicircles with a complete circle between, as shown in Fig. 25 (*a*), which is from the Strozzi Palace, thus establishing a traceried head. Later, after the Roman school, the windows were straight-topped with a cornice as in (*b*) from the Gondi Palace or they were flanked by columns and surmounted with entablatures and pediments, as in (*c*), from the Pandolfini Palace. In Rome, the openings are either flanked by columns carrying a pediment or entablature for a window head, as in (*d*) and (*e*), from the Farnese Palace, or they are treated simply as wall piercings between the great pilasters that extend from basement to cornice. In Venice, the windows are tall, as in (*f*), and are set close together, the façade of a building being frequently treated as a series of voids and solids, through the adoption of the arcade and colonnade, similar to the Colosseum at Rome.

(*a*)



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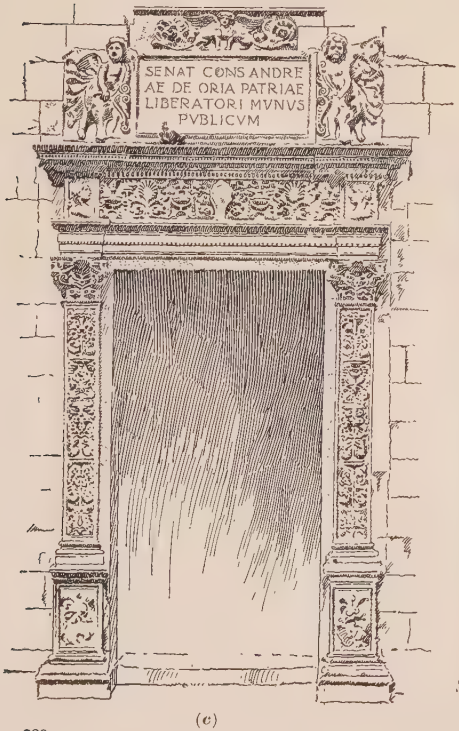
SENAT CONS ANDRE
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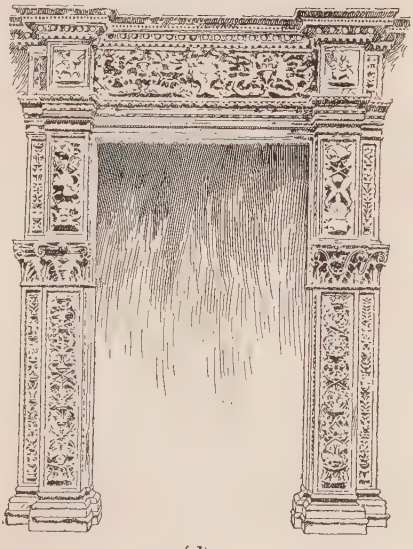
(*c*)



(*d*)

FIG. 26

MOLDINGS

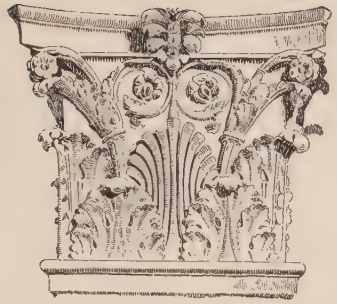
79. In Florence, the moldings are few and simple. In Rome, the details of the classic style were followed as closely as possible, but on a colossal scale. In Venice, the classic was followed, but the scale was smaller and the details were worked out with more delicacy.

ORNAMENT

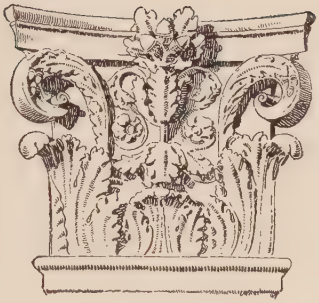
80. Fresco painting of the walls and ceilings was practiced in all three schools, as was also sculptured ornament in the friezes. The general decoration is usually grouped in masses in the Florentine style, to contrast with large areas of plain wall surface. On the exterior, about all the carved work observable are great armoried shields on the angles of the palaces, as in Fig. 1. In contrast to this, the Venetian style introduces decoration all over the front. Every spandrel has its appropriate sculpture in high relief and thus adds materially to the characteristic of the style.

81. On the interiors, the doorways were treated similarly to the window openings, and they were frequently carved with elaborate arabesques and classic ornament, as shown in Fig. 26. The example shown in (*a*) was executed in white marble, and consisted of two paneled pilasters for the side trim and an elaborate entablature for the lintel, or cap. The frieze was carved in the Greek honeysuckle and anthemion, and over the corona was turned a semicircular pediment. The example shown in (*b*) is similar, except that the side trim and lintel consist of moldings only, and the tympanum under the semicircular pediment is of black marble. In (*c*), which is an example from Genoa, a pedestal is introduced under the pilasters and the pediment is omitted, while at (*d*), also from Genoa, the capital is introduced below the door head—not a pleasing arrangement.

82. All pilaster caps shown in Fig. 27 are based on the Corinthian order, but none of them conform to it exactly.



(*a*)



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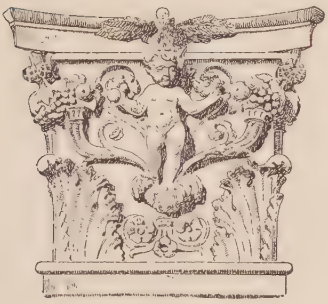

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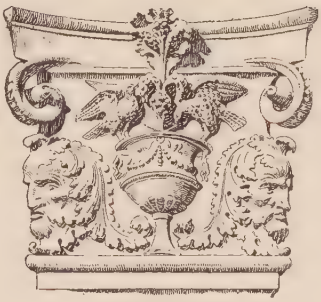

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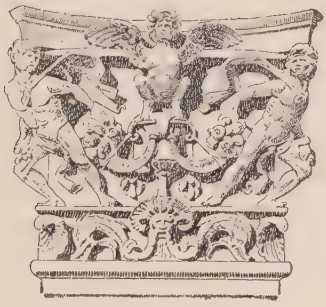

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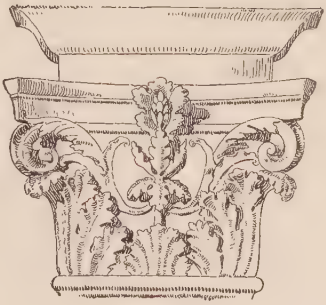

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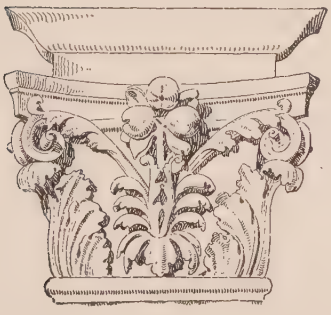

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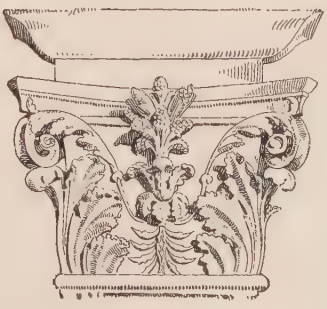


(*h*)

FIG. 27

The introduction of foliated heads and human figures is characteristic of the Renaissance and was later carried to extremes in France.

The arabesques that were carved in panels on the shafts of the pilasters, instead of the flutings of the classic models, were intricate and symmetrical, and were usually duplicated on opposite sides of a center line, as shown in Figs. 28 and 30. Fluted shafts were also used and the flutings were sometimes filled one-third the way up from the base with carved reeds or rope-like forms.

Bosses, as shown in Fig. 29 (*a*), (*b*), and (*c*), were introduced into ceiling decoration, and elaborate iron grilles, as shown in (*d*) and (*e*), were placed in the semicircular door heads.

The use of color in the ornamentation of the Italian Renaissance was lavish and the designs were most elaborate and excellent in execution. It was an age when artists were the architects and the finest painters and sculptors of the day were employed on the decorations. The subjects adopted were allegorical or religious, and were treated with conventional symmetry, while the rendering, at times, was decidedly naturalistic. In Fig. 30 at (*a*) is shown a panel from one of the pilasters in the Vatican. It is symmetrically disposed on each side of a vertical center line and made up of subjects borrowed from mythological conceptions, combined in a conventional treatment similar to the Pompeian paintings. The central stem consists of an attenuated vase from which tendril-like scrolls branch, while impossible grotesque animals rear themselves on each side. These suggest ideas borrowed from the mythology of the Greeks, as do also the naturally rendered, and conventionally posed, cupids above. In mythology we have the centaur and the sphinx, each symbolic of the intellect of man and the strength of the beast; the griffin with the head and wings of a bird, and the body of a lion; the dragon with the head of a beast, the body of a reptile, and the wings of a bat; and numerous other combinations that establish a precedent for these forms in the Renaissance paintings.

(*c*)

(*a*)

FIG. 30

(*d*)

(*b*)

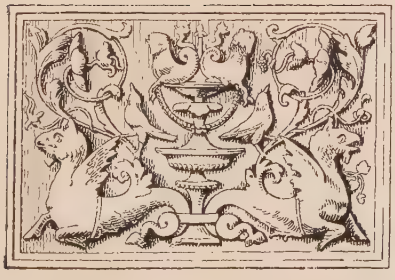
§ 51

(*c*)

(*a*)

(*b*)

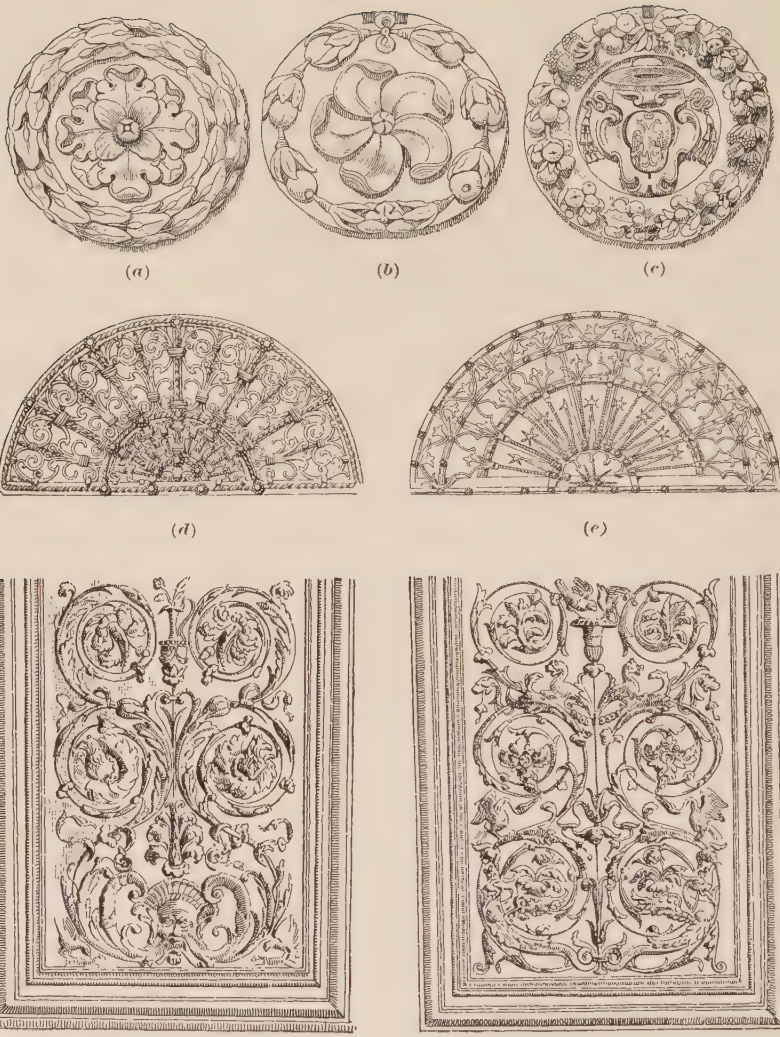
(*d*)



(*e*)

(*f*)

FIG. 28



(*a*) (*b*) (*c*)

(*d*) (*e*)

(*f*) (*g*)

(*h*) (*i*)

FIG. 29

The forms are shaded to give "roundness" to the parts—a treatment antagonistic to the highest ideals of surface decoration—but this treatment is found in many Renaissance decorations and is characteristic of the style.

In Fig. 30 (*b*) is shown another panel where two male figures, naturalistically rendered, support a tablet and superimposed decorative forms. Analyzing the design one finds the male figures suggestive of Hercules or Atlas, the tablet appears to be modeled after a Roman altar, and the griffins, acanthus scrolls, and Greek vase all appear to be of Pompeian origin. An unlimited variety of design can thus be invented and when carried out in the varied possibilities of color scheme, the painted ornament of the Renaissance presents a unique and interesting study. Much of it is false, however; moldings, cornices, consoles, and brackets are painted on the walls instead of worked in relief and when viewed from the wrong point are entirely out of perspective.

REVIEW EXERCISES

1. What is the meaning of the term Renaissance?

2. Describe briefly the conditions and influences that led to the Renaissance movement.

3. What are the general characteristics of Renaissance architecture?

4. What are the contrasting characteristics of Renaissance and Gothic architecture?

5. (*a*) Into what three schools, or styles, of design is Italian Renaissance architecture divided? (*b*) What are the contrasting characteristics of each? (*c*) Name three important buildings in each style and state by whom they were designed.

6. (*a*) What was the Rococo period? (*b*) What was the character of its ornament?

7. Who was (*a*) Michelangelo? (*b*) Vignola?

8. (*a*) What is the Vatican? (*b*) When was it erected?

9. On a sheet of paper 9 in. × 12 in. make a drawing of an Italian Renaissance doorway (5 ft. wide and 10 ft. high) consisting of two pilasters supporting an entablature, the pilasters to be paneled and carved in Arabesque designs with characteristic capitals as illustrated. The drawings are to be similar to, but not copies of, Fig. 27 (*a*), (*b*), (*c*), and (*d*), and on a scale of 1 inch = 1 foot.

FRENCH RENAISSANCE
(1515 TO 1800)

INFLUENCES

83. Geographical.—France had by this time assumed the boundaries she was destined to maintain practically down to the present day. Under Louis XIV and Napoleon, she acquired more territory, but soon lost it, so it need not be taken into consideration. (See also influences under French Romanesque, *History of Architecture and Ornament*, Part 2.)

84. Geological and Climatic.—The geological and climatic influences are the same as those given under French Romanesque, *History of Architecture and Ornament*, Part 2.

85. Religious.—Although there was high feeling in France between the Catholics and the Reformers, the government was in the hands of the former and the Protestants had very little direct influence. Moreover, as sufficient churches had been built during the medieval period, there was little necessity for many others, and none of importance were erected until the 18th century. Thus the style had little influence on church architecture.

86. Political and Historical.—In 1494, Charles VIII of France invaded Italy; in 1508, Louis XII joined with Florence in an alliance against Venice; and from 1522 to 1542, Francis I was at war with Italy, and although the French were defeated in all these conflicts, they were brought into contact with the superior civilization of Italy and were drawn into the Renaissance movement.

When the kings, Charles, Louis, and Francis, returned from their campaigns in Italy, they brought with them Italian artists and workmen, among whom were Leonardo da Vinci, Vignola, and, later on, Bernini. Francis I was an ardent patron of the arts and literature and it is to him

that France owes her picturesque châteaux along the river Loire. He reigned from 1515 to 1547 and was succeeded by his son Henry II. Henry married Catharine de Medici, one of the great Medici family of Italy, and through this marriage and that of one of her later kings, France was under Italian influence for nearly 100 years. Henry was succeeded in 1559 by his son Francis II who died in 1560, and was followed by his brothers Charles IX (1560 to 1574) and Henry III (1574 to 1589), but Catharine dominated the policy of her sons. She was an ardent Catholic and persecuted the Huguenots unmercifully. Under Charles IX, in 1572, over 20,000 Huguenots were murdered throughout France on the eve of St. Bartholomew's day. This is known in history as the massacre of St. Bartholomew. Under Henry III, the influence of the Catholic party became so intolerable that the king in an endeavor to free himself from its power, had the Duke de Guise and the Cardinal de Lorraine, leaders of the party, murdered in his private apartments of the château de Blois, as a result of which Henry himself was treacherously murdered by a Catholic fanatic in 1589. Henry IV, a Protestant, then came to the throne and promulgated in 1598 the Edict of Nantes, by which the Huguenots were given freedom of worship without persecution. But Henry turned Catholic, married Marie de Medici, another descendent of the famous Italian family, and at his death troubles broke out anew. Louis XIII (1610 to 1643) was but a boy when he ascended the throne, and France was governed by Marie de Medici and the Prime Minister Richelieu, an Italian prelate. Under Louis XIV (1643 to 1715), France became the leading country of Europe and many grand building operations were undertaken.

87. Many fine public monuments were erected by the government; the palaces were enlarged; much pomp and display was introduced into all royal ceremonies, and everywhere was evidenced the pride and ambition of the nation. In 1685, the king revoked the Edict of Nantes, and the

freedom that had been enjoyed by the Huguenots for 87 years was withdrawn. Persecutions immediately began, and as a result thousands of the most industrious and intelligent of the citizens of France fled to England and other Protestant countries. Louis XV reigned from 1717 to 1774. He was a dissolute monarch, who wasted the public revenues in all sorts of extravagances that further disgusted the people. With Louis XVI (1774 to 1793), a reaction set in and under the influence of the simple taste of Queen Marie Antoinette, who realized that the impoverished condition of the country could not stand the wasteful extravagance that had characterized the previous reigns, and the architecture of the period reflects this influence. But the reaction came too late. The revolution broke out and the enraged populace endeavored to exterminate royalty by putting all the nobility to death. Louis XVI and Marie Antoinette were beheaded.

During the revolution no building operations were attempted, religion was abolished, and a reign of terror and mob violence ensued. Finally, in 1795, a new form of government was established called the "Directory," under which an army of 200,000 men was put into the field in command of General Napoleon, and the foreign powers that were in sympathy with the martyred king were defeated. But the Directory was not so successful in ruling at home. The royalists were constantly intriguing to regain power and the form of government became unpopular. Finally, in 1799, Napoleon overthrew the Directory and seized the reins of government himself—first as consul until 1804, and then as Emperor until 1815.

During this period architecture and decorations eliminated every detail that would remind the country of its late royal oppressors. Architects and designers searched classic history to find a style suitable to their new conditions. Roman details were abolished, but the simple lines of the Greek style and the delicate-colored arabesques of the Pompeian villas inspired the artists to new endeavors, and the Empire period of French architecture is characterized by these influences.

CHARACTERISTICS

88. French Renaissance architecture may be divided into three periods: the **Early Renaissance,** or **16th Century** (1461 to 1589), comprising the reigns from Louis XI, to Henry III; the **Classic period,** or **17th Century** (1589 to 1715), including the reigns from Henry IV, to Louis XIV; and the **Rococo period,** or **18th Century** (1715 to 1793), under the reigns of Louis XV and Louis XVI.

The first period was transitional from the Gothic, but the second was marked by strong classical tendencies. The Rococo period was the decline, when ideas seem to have been exhausted, and meaningless detail, as in Italy, took the place of dignified and suitable ornament.

89. In Italy, the return to classic forms was almost immediate. The principal buildings were the palaces erected in the large cities, for the nobility, wealthy families, and the popes. In France, the principal structures were the châteaux erected as country residences for the king and his court.

The narrow streets of Florence, the straight waterways of Venice, and the public squares of Rome, necessitated a severely classical disposition, while the open-country surroundings, where the châteaux were erected, demanded the more picturesque treatment that could be attained through the Gothic school. The proximity of Rome rendered the details of Italian Renaissance almost servile in their classic purity, while in France, the detail was used freely and was altered whenever necessary to suit the Gothic construction.

The palaces of Italy usually presented only one front, while the châteaux of France were to be seen from four sides, and thus demanded a picturesque grouping from every point of view. The Italian villas are symmetrical, classic designs, according to the rules of the orders; the French châteaux, irregular Gothic castles with a veneer of Renaissance.

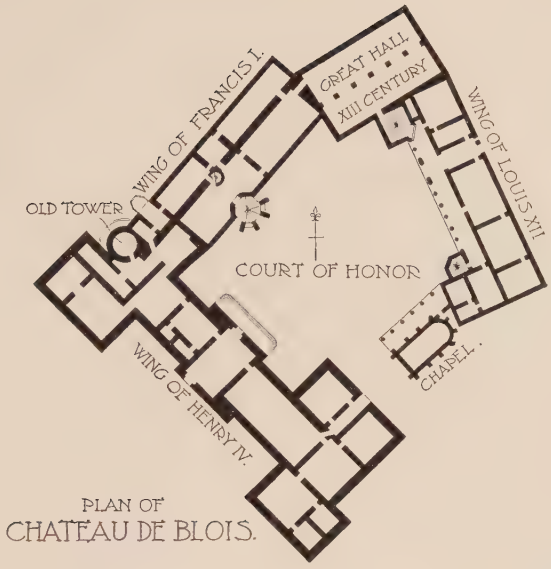
EXAMPLES

90. Châteaux.—The most interesting monuments of the Early French Renaissance are the *châteaux*. These constituted the country residences of the kings and their royal relatives. The châteaux are somewhat similar in character to the villas of Italy, but were situated farther away from the cities and were used more as rural retreats than were the Italian villas. A characteristic that distinguishes the French from the Italian Renaissance is that the earliest royal residences were in the form of a feudal castle; and when the invention of gunpowder rendered the castellar system of defense ineffectual, these residences began to assume a less forbidding and a more hospitable appearance.

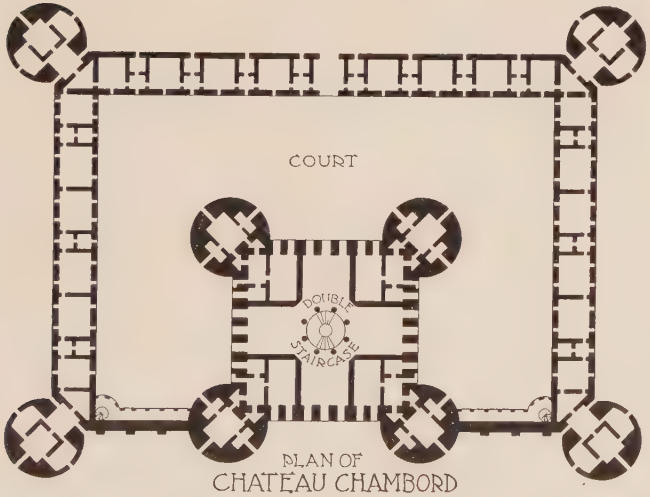
Large mullioned windows flanked by classic pilasters pierced the outer walls, while conical and high-peaked roofs covered the towers and main buildings. Richly ornamented dormer-windows and pilastered chimneys broke the roof slopes, while the buttresses and vaulting of the Gothic system were still retained. Thus, the honest, straightforward system of castellar construction is found emerging from its crudeness and bedecking itself with the refinements and frivolities of the approaching Renaissance. Along the river Loire are a number of these châteaux, many of which were erected or altered during the reign of Louis XII, while others were remodeled by his successor, Francis I. The châteaux along the valley of the Loire therefore present most excellent monuments from which to study the French Renaissance throughout its entire development.

91. Château de Blois.—The largest, and in some respects the most important, of these country residences of royalty is the château at Blois, a plan of which is shown in Fig. 31. In this structure, as it exists at the present day, are brought together the expressions characteristic of each successive period of the French Renaissance.

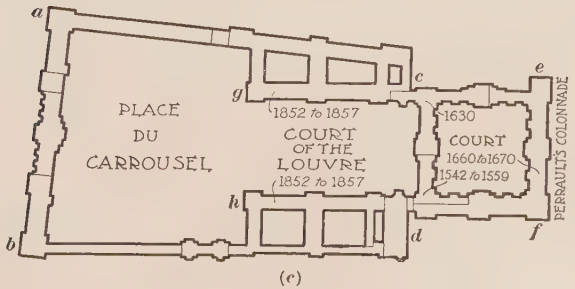
The plan of the château consists of three wings so disposed as to enclose a court of honor in the form of a


GREAT HALL
XIII CENTURY
WING OF FRANCIS I.
WING OF LOUIS XII
OLD TOWER
COURT OF HONOR
CHAPEL
WING OF HENRY IV.
PLAN OF
CHATEAU DE BLOIS.

(*a*)


COURT
DOUBLE STAIRCASE
PLAN OF
CHATEAU CHAMBORD

(*b*)


a
b
c
d
e
f
g
h
PLACE
DU
CARROUSEL
1852 to 1857
COURT
OF THE
LOUVRE
1852 to 1857
1630
COURT
1660 & 1670
1542 to 1559
PERRAULT'S COLONNADE

(*c*)

FIG. 31

distorted quadrangle, this irregularity being a most conspicuous and characteristic bequest that was left to the new structure by the old medieval castle on whose lines the present edifice is erected. The northeast side was built by Louis XII toward the end of the 15th century; the northwest side was completed by Francis I in the middle of the 16th century; and the southwest side is the work of Gaston of Orleans in the beginning of the 17th century.

92. Having discussed the characteristics of the wing of Louis XII in *History of Architecture and Ornament*, Part 3, the wing of Francis I, on the northwest side of the court, Fig. 32, will be considered. This part was erected only 50 years after the wing of Louis XII was completed, but the difference in style is manifest even to the most casual observer. The artists of the 16th century, hurried along by the swift current of those 50 years of wonderful intellectual regeneration, seemed to understand even better than their successors that the Romans had not used the orders as elements of construction, as the Greeks did, but as decorative details having no essential relation to the construction whatever. They seemed to know by instinct that there was no law, moral or artistic, that should prevent them from taking those Roman orders and details and using them in any way they chose, structural or nonstructural, so long as their use suited the purpose to which they were applied. Thus, a study of this period of architecture shows that the French builders accepted not the conventional restrictions of the classic formulas, but their essential spirit as an organized scheme of ornament.

93. The wing of Francis I, as it faces on the court, shows that the lessons in classic architecture given by the great Italian masters, who were entertained at the court like princes, were accepted by the French architects with interest and respect for their historic value, but were not learned by rote nor considered as laws on which all architectural designs must be rigidly carried out.

On the ground floor, the windows of this wing are not arranged to coincide with those of the floor above, thus

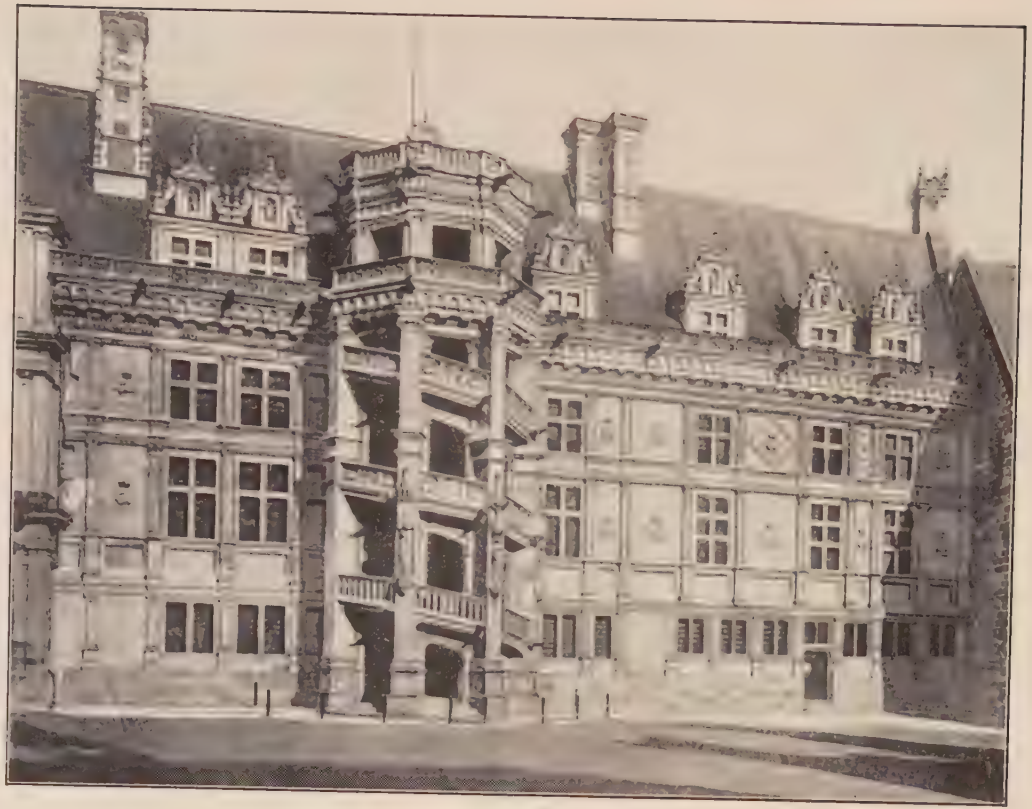


FIG. 32

introducing at once that old feeling of Gothic contempt for absolute symmetry. The pilasters on each side of the basement windows support a string-course that establishes a line of demarcation between the basement order and the more important series of pilasters in the two upper stories. All the pilasters are irregularly spaced so as to have suitable relations with the windows, as the builders understood that the details as used by the Romans were decorative in their character and not structural.

Between the two principal stories there is a broad string-course, or entablature, that divides the pilasters into two orders, one superimposed over the other. A great cornice surmounted by an elaborate balustrade crowns the entire wall. The coarse corbels that supported the Gothic parapet are replaced by elegant modillions borrowed from the Corinthian order, and between them are carved a series of delicate shells in place of the machicolations through which feudal ancestors poured deadly missiles and boiling oil on the unwelcome visitors below. The balustrade above the cornice is a most intricate design, in which the letters F and C are interwoven as initials of Francis and Claude, the king and queen.

94. The great octagonal staircase on this façade is a unique detail in architectural design and a masterpiece of 16th century architecture. It shows clearly the audacious independence of the French architects of the period, for it is entirely independent of the wall surface from which it protrudes, is unsymmetrically placed in the length of the wall, and consists of four great free-standing, Gothic-like buttresses that are crowned with capitals of a composite character. These buttresses, whose axial lines radiate from a common central point, support the continuation of the cornice from the main wall, and this continuation of cornice is the only detail that ties the stair tower to the main building.

In the lower part of each buttress is sunk a niche that is beautifully molded and canopied in the most elaborate traceries of Gothic imagination, but executed in the terms

FIG. 33

of the dawning Renaissance. Horizontal moldings divide the buttresses at the floor levels, but with these the horizontal elements cease. Every other detail inclines with the stairs as they ascend, and richly carved balconies extend from pier to pier. The balustrades of the balconies are divided into panels and contain the crowned F or the crowned salamander, emblematic of Francis I.

Comparing this wing with that of Louis XII, it is difficult to realize that a period of only 50 years could effect this change in style. The new work is fresh, cohesive, and architecturally grammatical, and seems to possess none of the weaknesses resulting from timidity in the use of a new style.

95. The exterior façade of the wing, as shown in Fig. 33, is merely a facing on the structure of the 15th century, as the whole composition grew out of the necessity of establishing communication between the tower of Moulin and the buildings on the southwest end of the court. A series of arches in two stories, separated by piers and engaged columns, were carried around the tower, and the circular shafts were carried to the cornice, after the Romanesque manner. At a later period, these orders were carried for six bays toward the north, with elliptical arches instead of semicircular ones, and with pilasters to separate them instead of columns. Still later, six more bays were added, and thus the entire façade was completed.

The roof is supported on free-standing columns, poised above the pilasters like an Italian loggia, or balcony, connecting the top-story apartments. A two-story dormer breaks the continuity of this roof arcade with Gothic independence of symmetry, being just out of center. In fact, the great charm of this entire façade lies in the disregard of the absolute symmetry and duplication that was being followed in Italy and later was to characterize the French style also.

96. Château Chenonceau.—The little château of Chenonceau, Fig. 34, is of about the same date as the wing of Francis I at Blois. It was commenced about 1515 on

FIG. 34

FIG. 35

the site of an old mill, after designs made by Pierre Nepveu. The mill foundations being in the river, the château extends partly over the water, and its base lines were necessarily somewhat sharp and angular. The château itself, however, broke out from these foundations in true Gothic fashion into round towers at the angles, which were roofed over with conical turrets having steep hip roofs between. On the entrance façade, the roof line was broken by three dormers similar to those on the Francis I wing at Blois, and although these are arranged symmetrically over the windows in the façade below, and the details of the front are symmetrically disposed about the center, the whole composition is more Gothic in feeling than Renaissance.

97. Château Azay-le-Rideau.—The château of Azay-le-Rideau, Fig. 35, was begun in 1520, five years later than Chenonceau and a few years before the completion of the Francis I wing at Blois. It presents no single feature that can compare with the octagonal staircase at Blois, nor is its situation so romantic as Chenonceau, but in refinement of detail, harmony of arrangement, and simplicity of outline, it is equal to any of the châteaux of Touraine. The plan is L-shaped, each angle of which is enclosed by a tower crowned with the characteristic conical roof. The towers are battlemented, as is also the curtain wall between them in some places, and even the loopholes between the embrasures proclaim the feudal origin of many of the details of the French Renaissance. Azay-le-Rideau, therefore, is essentially Gothic in its general conception, but the wide, carved window openings flanked with pilasters, the fanciful pediments crowning them, and the horizontal bands subdividing the façade, all point to classic influences and incipient Renaissance. The richest ornamentation is to be found on the dormers, which resemble those at Blois.

98. Château Chambord.—The château of Chambord, Fig. 36, was erected by Francis I, with the intention of making it the most magnificent in France. The location is unromantic at the present time, as the timber has all been

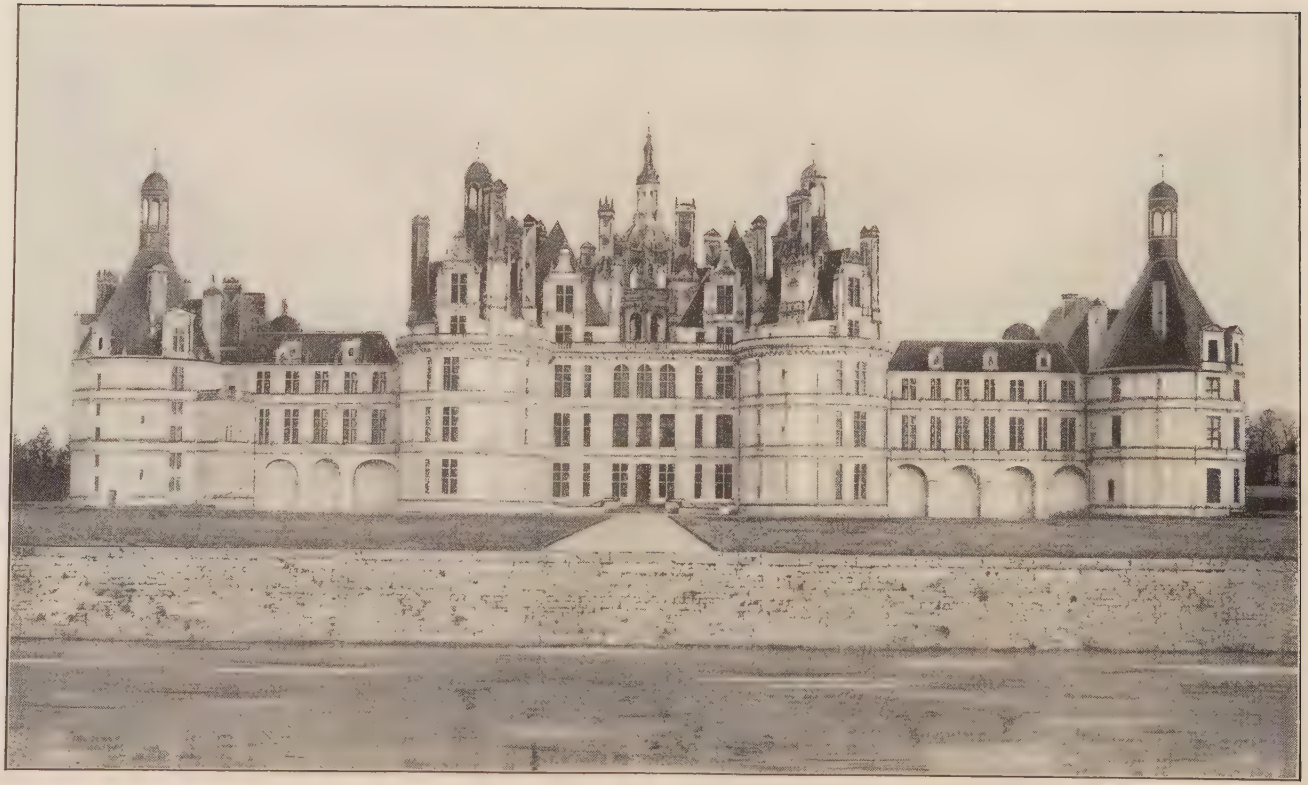


Fig. 36

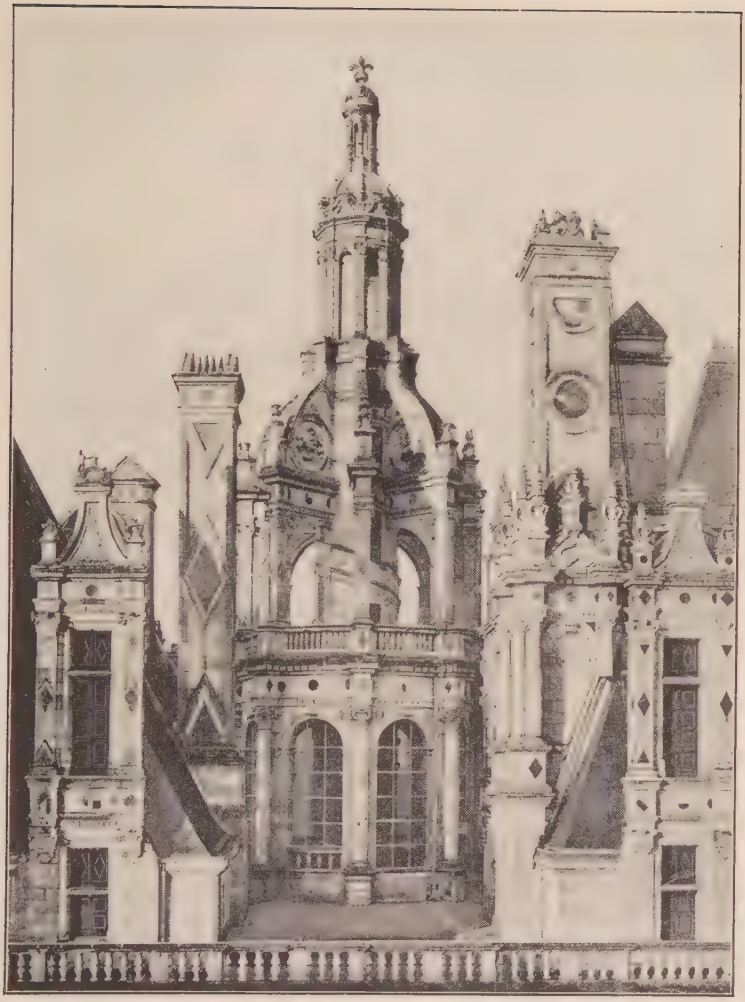


FIG. 37

cut and the château left alone on a flat, sandy plain. Being at a considerable distance from any supply of building material, this château was a very expensive palace to build. However, time and expense were nothing to a monarch of the temperament of Francis I. The suite of Francis I consisted of about 1,800 people, and as it was the whim of the monarch to wander constantly from château to château, the housing of this tremendous retinue was a problem of no small consideration. Chambord was therefore built for their accommodation, as they could not obtain comfort elsewhere.

Chambord had 440 rooms, and enough stables to accommodate over a thousand horses [see plan, Fig. 31 (*b*)]. Originally, it was situated in the center of a wooded park, the enclosing wall of which was 21 miles in circumference. The plan of the château was a rectangle, with a tower at each corner; the donjon in the center of the main façade is a relic of feudal planning.

The angles of the plan are enclosed by immense round towers and the main façade is broken by two others, so as to include the outer corners of the donjon. The walls are divided into panels by horizontal string-courses and pilasters, which, with the window openings and other details, are arranged with rigid symmetry and regularity. Were it not for the round towers, which are of enormous girth, the walls would pass for commonplace Renaissance, but the roof that crowns the whole structure is of most riotous Gothic, carried out in Renaissance detail. It scarcely seems credible that this was the design of the same architect that created the dainty little château of Chenonceau. This roof fairly bristles with a forest of towers, turrets, dormers, and chimneys, all of which are carried out in rather coarse Renaissance detail, as shown in Fig. 37.

99. In the center of the donjon was a double staircase as celebrated for its ingenuity as that at Blois was for its beauty. This staircase consisted of two spiral flights, one coiled within the other, so that persons going up and down stairs would not meet in passing. On the second floor, this

stairway opened at the intersection of two wide corridors, as shown in Fig. 38, and continued its windings up to a lantern above the roof, as shown in Fig. 37, where it ended on a balcony. As shown in Fig. 38, one of the spiral stairways starts from the landing shown, and winds to the left in a continuous flight, while the second stairway starts at the landing on the opposite side of the shaft and winds spirally beneath the first. In the illustration, the two balustrades

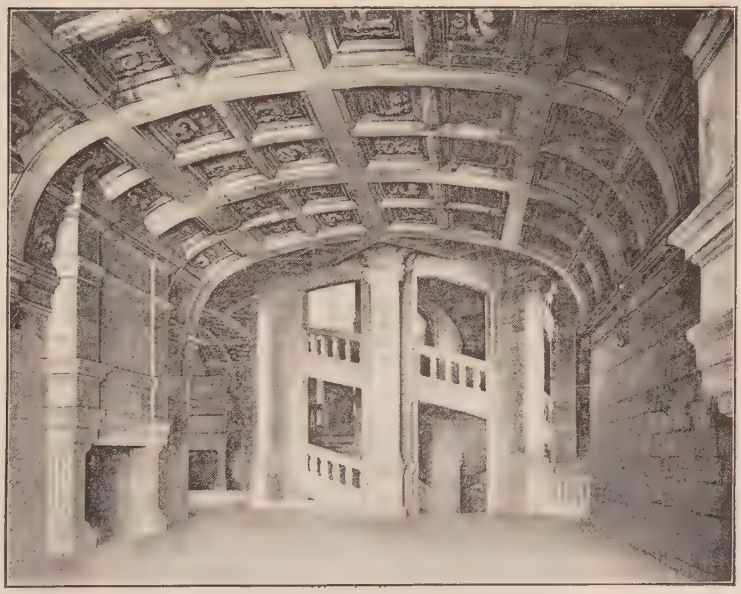


Fig. 38

that show one over the other flank the two independent stairways. The interior double stairway terminates in the lantern shown in the center, Fig. 37, from which access is obtained to the immense roof, which is surrounded by a balustrade.

All the carved details are interwoven with the crowned F or crowned salamander of Francis, and occasionally with the crowned H of Henry II, his son, who inherited the château after Francis I died and left it unfinished, notwithstanding the fact that 1,800 men had worked on it for 12 years.

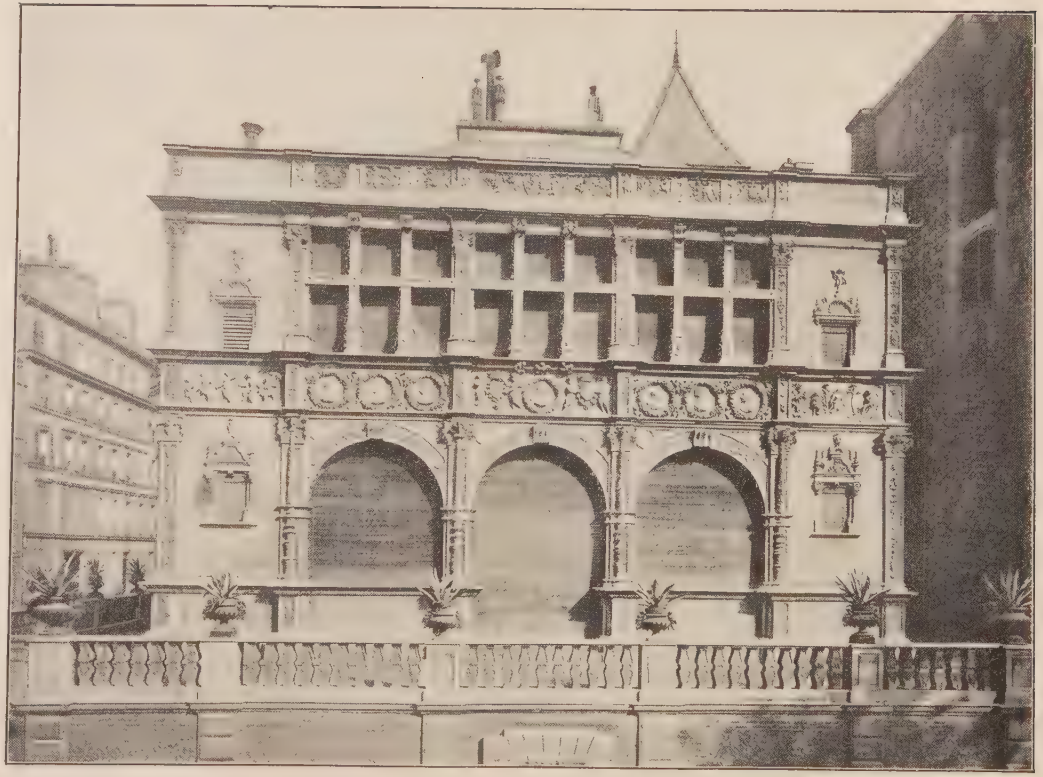


FIG. 39

255 FIG. 40

100. Hunting Lodge of Francis I.—The hunting lodge of Francis I, Fig. 39, was built in 1527 at Moret, in the forest of Fontainebleau, about 35 miles from Paris. It is characteristic of this period of the Renaissance and shows more than do the châteaux of Touraine the strong influence of the Italian style. The treatment of the façade, with the solid ends and the windows grouped in the center, is distinctly Venetian. The ornament is rich and beautifully executed and shows scenes from the chase and portrait medallions of members of the royal family.

101. Church of St. Etienne du Mont.—St. Etienne du Mont, Fig. 40, was one of the few churches built during the reign of Francis I. Ecclesiastical architecture received scant attention during this period, but the edifices of this kind that were erected adhered far more closely to Gothic details than did the secular buildings. In Fig. 40, the main portal, with its four columns and pediment with superimposed attic treatment, is essentially classic, but the rose window in the center, the pointed gable above, the traceries in the openings, the flying buttresses at the side, and the irregularities of the sky line, are Gothic in the extreme.

102. Louvre Palace.—The most important work of the Francis I period was the rebuilding of the Louvre, in Paris. The old Gothic fortified palace had always been the principal residence of the kings, but it had become so unsuited to the requirements of the age that it was torn down in 1546 and entirely rebuilt in the new style from plans prepared by two architects—Serlio, an Italian, and Pierre Lescot, a Frenchman. The Louvre consists of a quadrangular court 394 feet square surrounded on four sides by galleries, Fig. 31 (*c*), two of which extend westward until they meet the Palais Tuileries *a b*. The east wing, or gallery *e f*, of the Louvre is 548 feet long and 90 feet high, and contains the celebrated colonnade, subsequently designed by Perrault. The south side *b d f* faces the river Seine, and is 2,250 feet long. In the middle of each façade facing the quadrangular court, there is a pavilion rising above an archway, over each of

Fig. 41

which are constructed niches that were afterwards embellished with statues. The height is divided into three stories, the divisions of which are emphasized by pilasters in the Corinthian and Composite orders. The orders, however, were not used in great prominence, but the ornament and sculpture were appropriate and refined.

103. Classic Period.—The Classic Renaissance included the period immediately following the reign of Francis I up to the end of the 16th century. The charming independence of the Francis I style began to give way about the middle of the 16th century to a more servile copying of antique details. Façades became flat, and cornices were more conspicuous. Arches were introduced after the Roman style, and the carving became heavier and more aggressive instead of delicate and fanciful, as were the arabesque designs of the earlier period.

104. In the southwest wing of the château at Blois, Fig. 41, which was designed by François Mansard for Gaston of Orleans, a brother of Henry IV, the tendency to copy the classic orders literally, and to decorate every opening and angle with some form of classic ornament, regardless of the convenience of plan or the propriety of the detail, is clearly shown. As the architects became more learned, they lost their fearlessness and independence, and instead of simply borrowing ideas from classic models, they appropriated the whole system.

The Roman orders of architecture, according to Vignola were loyally reproduced by Mansard in the southwest wing at Blois, presenting a contrast to the wing of Francis I that is full of historic meaning. Mansard constructed the first story in the Doric order, the second story in the Ionic order, and the third story in the Corinthian order, precisely as the works of Vignola dictated. The window heads, pediments, and arch imposts were all intended to be strictly Roman, and a suggestion that any part of the composition was of French origin would have been considered an insult to the designer. The roof, however, was an invention of the

259 FIG. 42

architect; existing through necessity, it was designed to slope back, as if hiding behind the aristocratic classic detail. No high roofs existed in the ancient monuments, and it was impossible for the architects of the 17th century to introduce to prominence any detail, no matter how necessary, that had not its origin in classic Rome.

105. Sorbonne Church.—The Sorbonne Church, Fig. 42, was one of the most interesting designs of the classic period. The exterior is a simple composition, being treated with superimposed orders under a low pediment in the center. A high dome covers the center of the plan, around which are grouped heavy, square pilasters that serve as buttresses. In this period and the successive ones, the dome is more and more frequently used as an important detail, even sometimes to the subordination of the other parts.

106. Age of Louis XIV.—The age of Louis XIV was remarkable for its literary and artistic activity. The architecture was conspicuous by its liberal use of the orders in exterior design, while the interior decoration was showy and capricious, usually to excess. Papier mâché and stucco were freely used in some examples of relief ornamentation far better suited to the decoration of a boudoir than that of a ballroom or a hall of assembly.

107. In 1688, the east wing of the Louvre was completed from the designs of Claude Perrault, the court physician, whose plans were accepted in preference to those of Bernini. The colonnade of the Louvre forms one of the most imposing façades in existence, but it is a mere decoration, and possesses no structural relation to the building it forms a part of. It is dignified and stately and well suited to its position on the façade of the finest palace in France, but its existence is structurally unnecessary.

108. To this period is also due the Hôtel des Invalides, or veterans' asylum, Fig. 44, by Jules H. Mansard, a son of François Mansard. Here the classic orders may be seen in superposed series with Palladian regularity, while the whole is crowned with a dome, which is a masterpiece of the age.

FIG. 43

FIG. 44

263

FIG. 45

109. Age of Louis XV.—Under Louis XV, the Rococo was introduced into France through the effort to inject some originality into the old, stereotyped classic designs. External decoration tended to the greatest extravagance in design and an utter disregard for constructive propriety. Scrolls, shells, palm leaves, and distorted forms were carved on the cornices and friezes almost to the exclusion of straight lines.

110. The **Church of St. Sulpice** was built in 1755. The interior of this structure, Fig. 46, dates from the 17th century, and though well designed, is in no way a remarkable composition. The façade, however, designed by Servandoni, is one of the most striking architectural compositions in Paris. It consists of a classic composition in two stories, with a well-proportioned Doric order below and a superposed Ionic order supporting the main corners. Two tall lateral turrets flank the angles and render the design symmetrical and well balanced.

111. Versailles Palace.—The palace at Versailles is an immense edifice that was built by Louis XIII in the latter half of the 17th century. Its erection almost exhausted the resources of the national treasury, and considering the great expenditure the result is far from satisfactory. There is no dominant feature in the composition; neither is there an imposing entrance. The plan lacks the ingenuity usually displayed by the French architects. It consists of a central court and two great wings, one extending to the north and the other to the south. A portion of the northern wing is shown in Fig. 47, from which can be seen the lack of harmony in the details. The tetrastyle portico over the rustic basement is the pavilion of Louis XIV, while the structure to the right of it is the chapel, the interior of which is shown in Fig. 48.

112. Petit Trianon.—The Petit Trianon, Fig. 49, erected by Louis XV, in 1766, shows clearly the tendency to adopt fully the Italian Renaissance detail. The treatment here is essentially after the Roman school and shows no influence of the French traditions.

FIG. 46

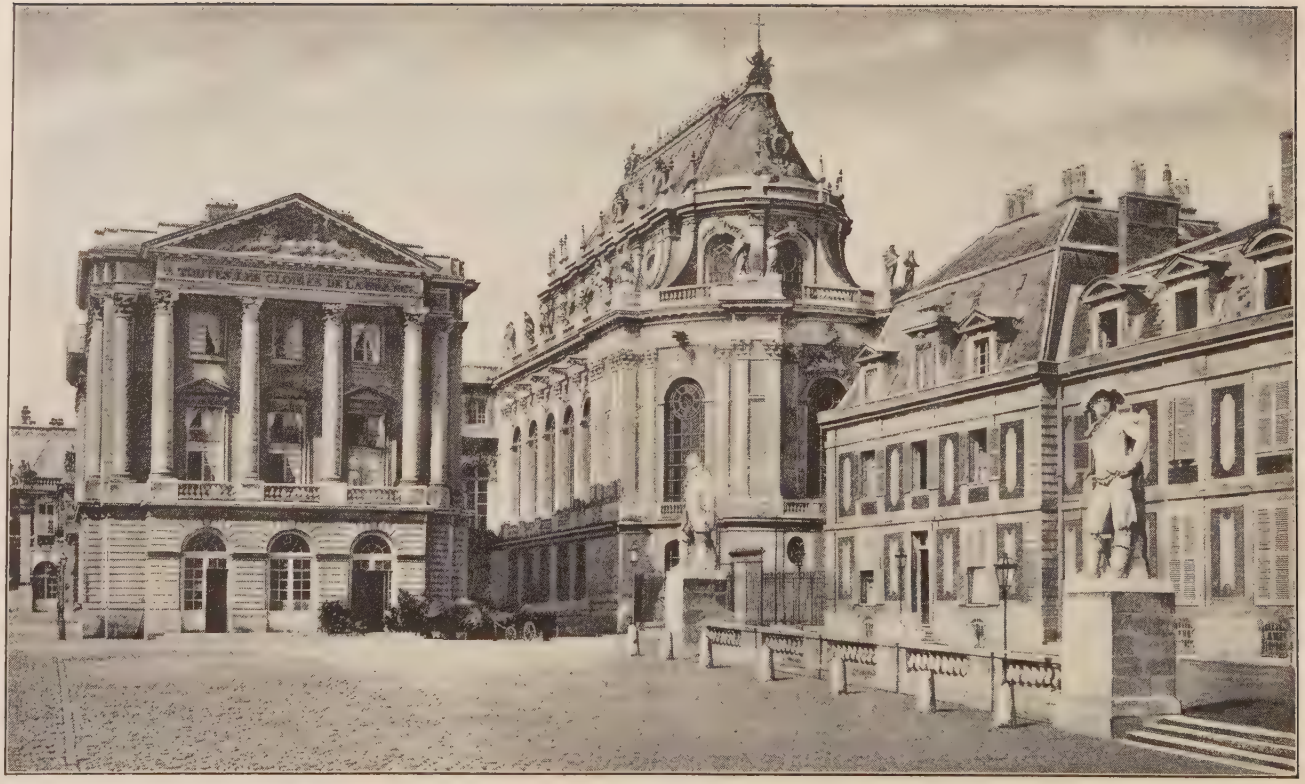
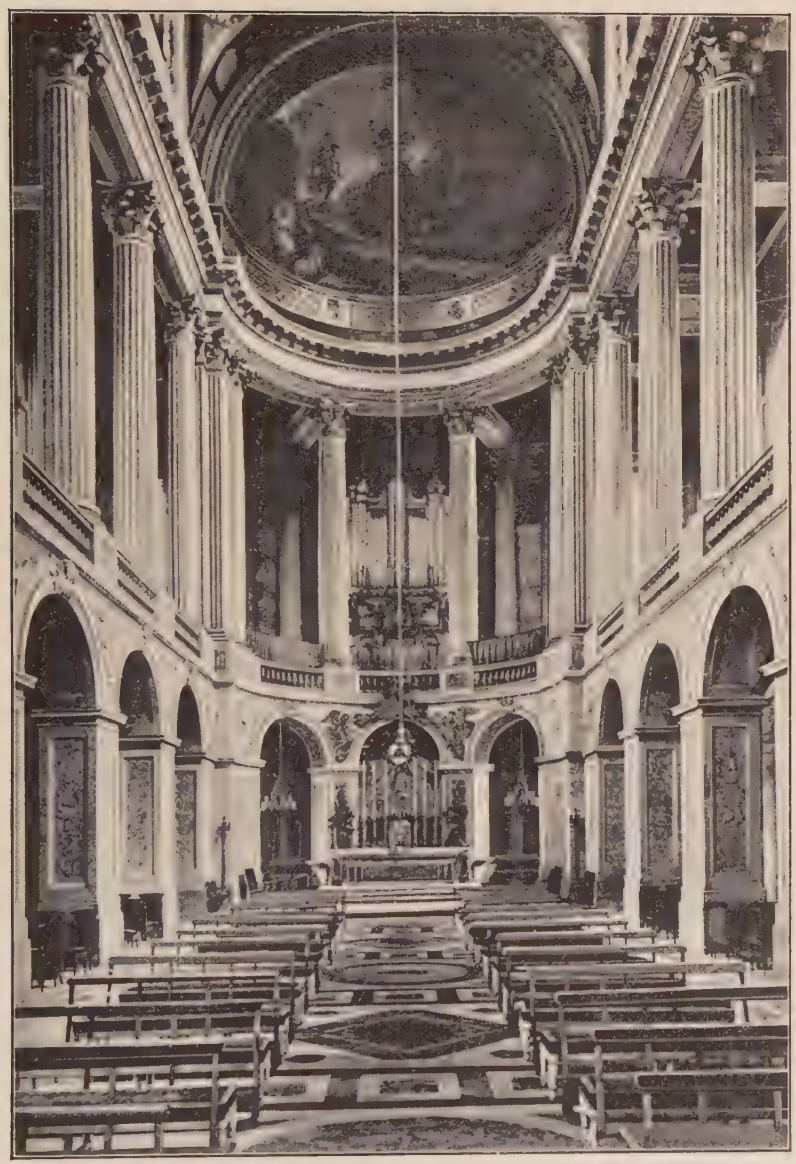


Fig. 47



267

FIG. 48

FIG. 49

ANALYTICAL STUDY

PLANS

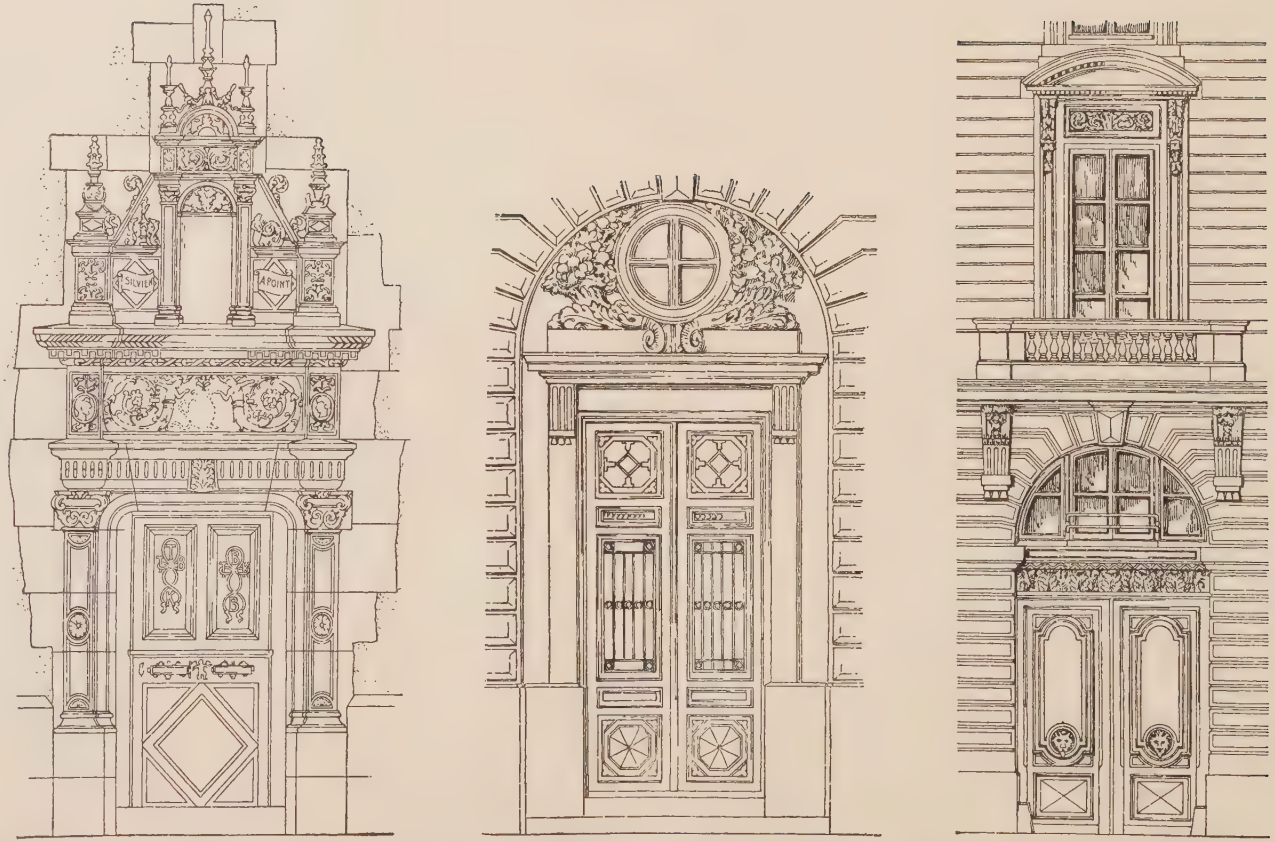
113. The Gothic castle plans materially influenced the early châteaux, many of which were built on the sites of old medieval structures. A few large residence structures, however, were erected on entirely new sites, and Chambord may be taken as an example of one of them. Chambord was an early attempt at an ideal palace plan. The town houses retained the interior court of the medieval castle, and closed it on the street side with a screen wall. The windows of the principal ground-floor apartments opened on the court and not on the street. In Italy, the central courtyard was the principal feature of the palaces. It was usually surrounded by a covered colonnade or an arcade over which the second floor projected.

WALLS

114. At first, the walls retained the Gothic gables and stone dormers, but later they gave way to the classic pediment and balustrade. The mansard roof was used over pavilions at the angles. Stone was used chiefly, though in some localities brick was combined with it. The architectural orders were sparingly used at first, but later gave way to strong classic treatment. This contrasted with the Italian style, which from the beginning made extensive use of the orders on the plain, straight façades, with their heavy projecting cornices.

ROOFS

115. The high, pitched roof of the Gothic style remained to characterize the French Renaissance, while flat, low roofs characterized the Italian style, where, owing to narrow streets, the roof could not be seen. Chimney stacks were



(a) (b) (c)

FIG. 50

hidden in most Italian examples, but at Venice and in early examples at Florence, tile roofs were made visible above the cornice, while in France the fanciful treatment of the chimneys was characteristic of the style.

COLUMNS

116. In the early work, pilasters were mere decorative adjuncts to Gothic construction, but later they were paneled and carved with geometrical and foliated ornament; whereas, in Italy, geometrical decoration of the pilasters was unusual, the pilaster there being used for its architectural value as an order, rather than for its decorative effect. In France, an order of pilasters was used to support the window head in the first story, and the pedestal of the superimposed order formed the sill-course in the story above, thus showing the influence of Vignola; whereas, the Italian style carried an order through two stories, after the system of Palladio.

OPENINGS

117. The mullions and transoms of the Gothic style remained in the Early Renaissance (see Fig. 33), but later, as the orders were used successively in each story, the horizontal lines of their entablatures were used to mark the sill-courses and lintel courses of the windows (see Fig. 42). Symmetry, both in size and in arrangement, was aimed at until toward the end of the period, when there was little original feeling left in the designs. In Fig. 50 are shown three characteristic doorways. At (*a*) is an example from Chenonceau wherein the classic details are used decoratively, while the Louis XIV door at (*c*) and the Louis XVI door at (*b*) show the severe treatment imposed by close adherence to the Italian style. In the Italian Renaissance, symmetry regulated the openings from the beginning, and in the late examples the position of these openings was determined more by the rules of the classic orders than by convenience of interior arrangement.

The attic was rare in the Italian style, but a special feature in the French. The heavy cornice, with windows in the frieze, topped the Italian wall, while a balustrade surmounted the French wall, and dormer-windows appear above it in the roof slope.

MOLDINGS

118. The Early French moldings were a combination of classic and Gothic, but the Gothic details gradually gave way to the full classic profiles. The Italian moldings were full and of great projection, especially in the great overhanging cornices. The string-courses in the early work were of less projection, in order to preserve the dominance of the cornice. Where orders were used in the stories, the moldings were purely classic and were studied with great care.

ORNAMENT

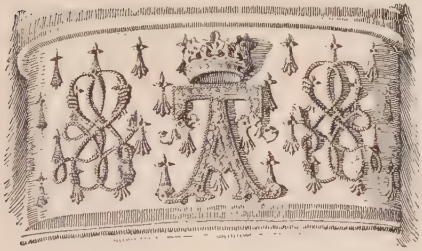
119. In France, where the Gothic period had left many fine examples of carved-wood panels, wood remained in use for decorative work and was richly carved with arabesque designs. In Italy, however, modeled plaster and frescos were used for decorative effect. Later, Raffael used a combination of the two, and this style pervaded the later ornament of the French Renaissance, when more Italian artists were imported to work on the palaces of Versailles and Fontainebleau.

During the reign of Louis XIV, the characteristic tapestry hangings as a wall decoration were superseded by panels of papier mâché and stucco decoration in white and gold. Every detail was ornamented with it, and during the period of Louis XV the rococo details assumed an elaborate and meaningless character that destroyed entirely the decorative value of the ornament.

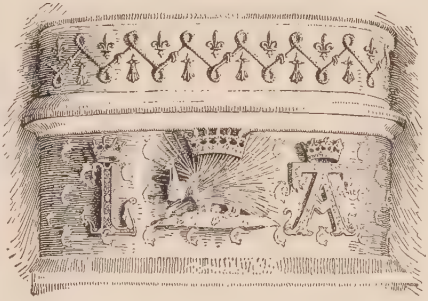
120. Characteristic ornamental details in the Early French Renaissance were the initials and symbolic devices of the kings interwoven with other ornament in the carved

(*a*)

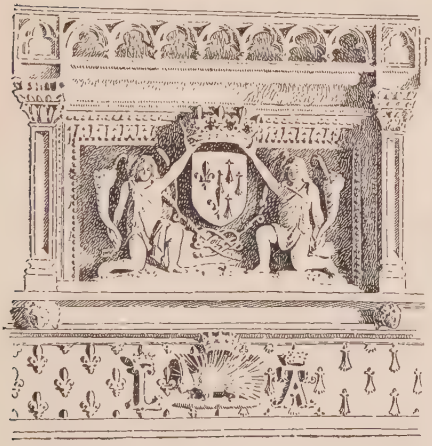
(*b*)



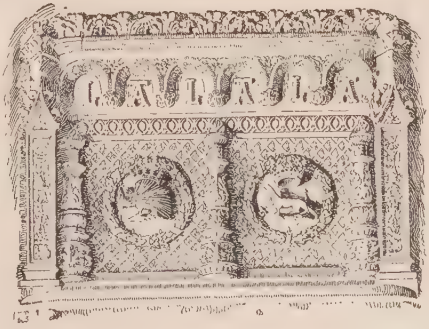
(*c*)



(*d*)



(*e*)



(*f*)

FIG. 51

work. In Fig. 51 (*a*) is shown one of the gables from the Francis I wing of the château at Blois, in which a royal crown pierced by the letter F forms the sole panel decoration. In (*b*) is illustrated the door head from the chapel of the château, with the crowned L and A, for Louis XII and Anne of Brittany, together with two shields, on which appear the fleur-de-lis, emblematic of the king, and the conventional ermine, the device of the queen. The latter is shown more in detail in (*c*), a chimney breast over a fireplace at Blois, where, on each side of the crowned A, are grouped tufts of ermine fur and also the "cordon," another device of the queen. In (*d*), on another chimney breast, between the crowned L and A, is a crowned porcupine, the king's personal emblem. The background of this example is made up of dolphins, which were the emblems of the princes of France that were next heirs to the throne. Above, in the frieze, is the cordon of Anne. In (*e*), a crowned central shield divided through the center contains, on each half, the fleur-de-lis and the ermine, respectively, while in (*f*), the crowned porcupine and crowned ermine are carved in full relief.

121. These animal emblems and other devices appear throughout the French Renaissance, and in many cases identify the period. The device of Francis I was a salamander and was carved in the dormer heads, similar to the F shown in Fig. 51 (*a*), in the side-wall panels, as shown in Fig. 32. The crowned H was used by Henry II, and was frequently interwoven with a C, for his queen, Catherine de Medici, or a D, or crescent, for his court favorite, Diana of Poitiers.

The painted arabesque panels of the French Renaissance were quite as elaborate as those of Italy, many of them having been executed by Italian artists or by French artists trained in the Italian schools. The designs are similar to the Italian school, but give less prominence to the mythological symbols than the designs found in Italy. The panels shown in Fig. 30 (*c*) and (*d*) introduce birds and

human figures with insects, festoons, and foliated devices, but without such direct symbolic references to the influences of the old classic mythology. Industrial and symbolic emblems, such as the palette, the pipes of Pan, the cornucopia, etc., were liberally introduced and all rendered in a brilliant and luminous manner.

REVIEW EXERCISES

1. What are the general characteristics of French Renaissance architecture?

2. (*a*) Into what periods is French Renaissance architecture divided? (*b*) What reigns are comprised in each?

3. What contrasting influences characterize the designs of French and Italian residences?

4. What are the principal structures of the Early French Renaissance period?

5. What are the characteristics of the (*a*) Early French Renaissance designs? (*b*) the Classic period? (*c*) Name one building of each period, and state briefly why it is classified in this period.

6. What political influences favored the introduction of Renaissance art into France from Italy?

7. To what succession of historical events does France owe her subjection to strong Italian influences for nearly a century?

8. What was the Edict of Nantes? (*b*) By whom was it made operative? (*c*) How long was it in force? (*d*) By whom and when was it withdrawn? (*e*) What effect upon the prosperity of the country did its withdrawal have?

9. Describe briefly some of the causes that led up to the French Revolution.

10. (*a*) What form of government followed the French Revolution? (*b*) By whom was it overthrown?

11. In what way was the architectural taste of the people affected by the overthrow of the French monarchy?

GERMAN RENAISSANCE

INFLUENCES

122. Geographical.—See German Romanesque Influences, *History of Architecture and Ornament*, Part 2.

123. Geological.—Absence of stone in Northern Germany caused designs to be worked out in brick. Molded and cut brickwork therefore strongly characterized the style.

124. Climatic.—See German Romanesque Influences, *History of Architecture and Ornament*, Part 2.

125. Religious.—Martin Luther, a priest of peasant origin, objected to certain practices of the Church that were authorized by the pope, and posted on all the church doors in the community his denunciation of the papal approval. For this act he was excommunicated from the Church. He and his followers protested against the edict passed in 1829 by the Diet of Spires, and thereafter Luther and his followers were known as Protestants. Luther translated the Bible into high Dutch, and thus caused that language to become the acknowledged German tongue.

126. Political and Historical.—Germany consisted of a number of small kingdoms, or principalities, each of which was ruled by its own king, thus preventing any national union of all sections, as was the case in France. From the election of Rudolph I of the house of Hapsburg as emperor, down to the reign of Maximilian of the house of Austria, there had been rulers elected from each of several states, but no one principality had controlled the reins of government long enough to unite the people into one homogeneous nation. With the ascendency of the house of Austria, however, Germany was destined to remain under the same line of rulers, with a short interruption, for nearly 400 years.

The reign of Frederick III of this house was a feeble one, but it saw the invention of printing by Gutenberg, which was destined to play such an important part in the Reformation and Renaissance. Maximilian I, son of Frederick, reunited the several states into a homogeneous empire. By marriage with Mary of Burgundy he acquired Burgundy, to which the Netherlands belonged, and he witnessed the beginning of the Reformation by Martin Luther. Under Charles I, his successor, Germany passed through one of the most remarkable periods in her history. Charles I was the son of Archduke Philip of Austria, and grandson of Maximilian. His mother was Johanna, daughter of Ferdinand and Isabella of Spain. Through his father he inherited the empire of Germany, while from his mother he received the kingdom of Spain. His vast inheritances, combined with his great ability, made him the most powerful emperor since Charlemagne. In 1516, Charles I succeeded Ferdinand as king of Spain; in 1519 he became emperor of Germany; and in 1520, he was crowned emperor of the Holy Roman Empire, under title of Charles V. Charles V and his successors supported the Catholics, and waged war against the Protestant princes almost constantly until 1648, when peace was declared and religious liberty granted.

England, Scotland, and Sweden joined in this war on the Protestant side, for the sake of religion, while France entered on the Catholic side, for her own aggrandizement. As a result of the peace, finally signed at Westphalia, in 1648, Germany was utterly ruined, Switzerland and the Netherlands were recognized as independent states, and France had risen to the leading power of Europe. Shortly after this time Louis XIV was pursuing his policy of aggrandizement, and the influence of France throughout Europe was so great that the German princes allied themselves with France against their Emperor, and all the little courts of the German states adopted the French language and imitated the immorality and prodigality that characterized the French court and was destined to cause its destruction at the hands of an enraged people.

CHARACTERISTICS

127. The characteristics of the German Renaissance lie chiefly in the quaintness and grotesqueness of its ornament, being due to the medieval traditions that were inherited from the previous style. The style was introduced from France about the time that France was going to the extreme in classic details. German Renaissance, therefore, is not so refined as the French style and its details are coarse and heavy. It had no artistic transitional period like that of the Francis I period, in France.

Germany, being an empire composed of a number of smaller principalities and kingdoms, does not present in its architecture any one dominating characteristic that unifies the style throughout the country. French ideas and even the French language were so popular throughout Germany at this time that it is not strange that the architectural detail of the Rococo period should be translated to the German constructions, but like all translations it naturally took a strong German accent. The German Rococo copied the scrolls, shells, cupids, and other details of the French style, but made them all heavier and bolder, thereby losing much of the delicacy and frothiness that was the only recommendation of this style of ornament. In France, the rococo decorations grew out of the exaggerated and excessive development of the papier mâché ornament of the Louis XIV style. In Germany, the rococo devices were borrowed directly without question of their origin or purposes.

This is due to the fact that the Renaissance was not introduced into Germany in the same manner as it was into France. The Italian wars of Louis XII, Charles VIII, and Francis I brought them directly into contact with the highly developed civilization of the northern Italian cities. These monarchs induced several Italian architects to return to France with them and introduce the new art, but it was not until the reign of Francis I that architecture generally showed strong Italian influences in France.

EXAMPLES

128. The rococo ornament of the period of Louis XIV and Louis XV was received into Germany and carried to

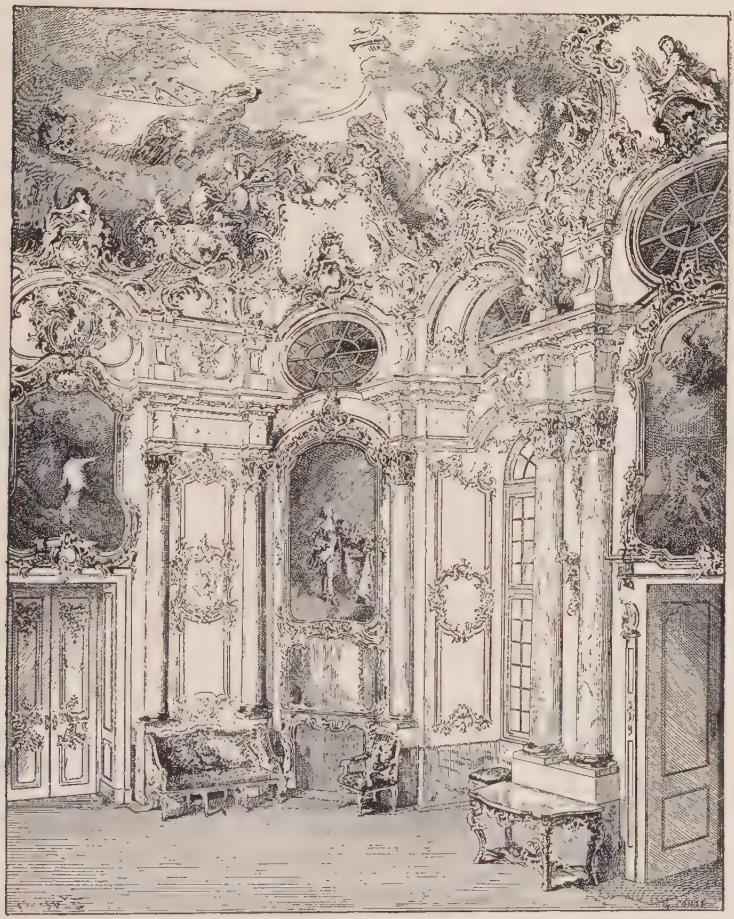


FIG. 52

even greater excess than in France. Fig. 52 shows a view of one corner of the state drawing room in the Palace Brucksal, at Baden, and indicates to what extremes this

frivolous detail can be carried when the decorator is unfettered by lack of either money or talented artists.

129. The Zwinger galleries, at Dresden, Fig. 53, are elaborately ornamented with carved cartouches, shields,

FIG. 53

festoons, and scrolls, interspersed with animal and human forms in great profusion.

130. Renaissance ran well up to the beginning of the 19th century, and at that time it adopted classic forms absolutely, without regard to their propriety or convenience.

281 FIG. 54

ANALYTICAL STUDY

PLANS

131. In German Renaissance, the French method of erecting buildings around an interior court was adopted, and the high, pitched roofs, containing many stories, were continued from the medieval period.

WALLS

132. The gable ends, instead of conforming to the pitches of the roof, assumed fantastic and irregular outlines, as shown in Fig. 54. Columns and pilasters were freely used as wall decorations, and in this manner, effects of

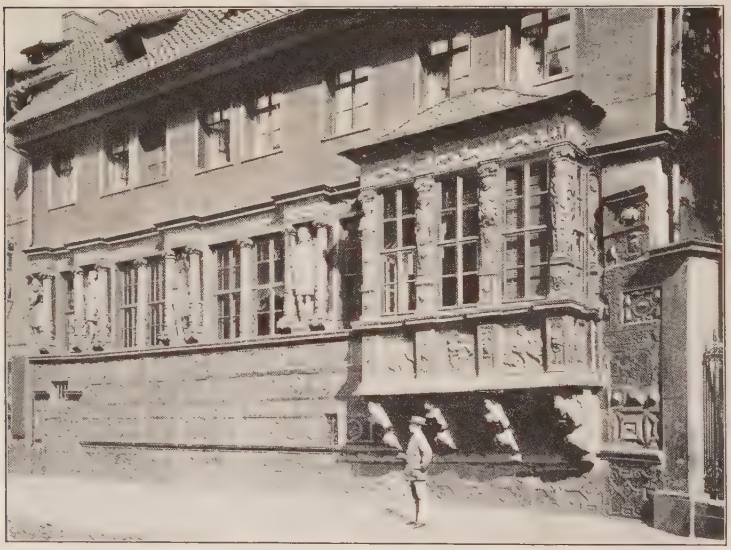


FIG. 55

great richness were frequently produced. The façade of the Kaiserhaus, at Hildesheim, is shown in Fig. 55. Here, the pilasters along the front bay window are carved into grotesque male figures supporting a frieze representing

figures from the hunt. Niches, whose tops are supported by Ionic columns, contain statues of the kings and emperors, and the entire lower façade is richly carved in medallions, giving the whole a decidedly ornate, though rather coarse, appearance. Brick and stone were used in combination, and also singly in many instances.

ROOFS

133. High, pitched roofs, with their ridges parallel with or at right angles to the street, were as numerous as in the Gothic period, and elaborate stepped and scroll treatment gave the gables great prominence where they faced the street (see Fig. 56). The sloping roof, as in the Gothic period, was characterized by numerous dormers when it was parallel with the street front, as shown in Fig. 57.

COLUMNS

134. The orders were adopted purely as decorative details and without regard to their classic traditions. Each story of a building was frequently marked with a horizontal cornice, but the columns or pilasters supporting it were frequently supported on projecting corbels instead of on independent pedestals. The faces of the pilasters, or narrow panels between the windows, were carved in arabesque patterns, and the columns were richly decorated with carved detail.

OPENINGS

135. In the early part of the period, the windows were large, mullioned, and crowned with grotesque scroll ornaments, instead of a pediment. Oriole windows were introduced both at the angles of buildings and in their façades, and late in the period severe classic forms were adopted, as in other countries.

MOLDINGS

136. The German moldings were heavy and lacked the refinement and purity of detail that characterized the French moldings.

FIG. 56

FIG. 57

BELGIAN AND DUTCH RENAISSANCE

INFLUENCES

137. Geographical, Geological, and Climatic.—See Dutch and Belgian Gothic Influences, *History of Architecture and Ornament*, Part 3.

138. Religious.—In 1556, Charles V, emperor of the Holy Roman Empire, abdicated and entered a monastery. The kingdom of Spain he gave to his son Philip II, and the imperial crown to his brother Ferdinand. Philip II continued the persecution of the Protestants begun by his father until the Dutch provinces rose in rebellion. After a struggle of 37 years, Spain was humbled and the Dutch republic was established. The Belgians, being mainly Catholics, adhered to Spain and were opposed to Holland during this struggle. Protestantism being thus established in Holland, church building there was in accord with the congregational idea.

On the division of the empire of Charles V at the time of his abdication in 1556, the Netherlands fell to Philip of Spain, and although this resulted in the cruelest persecutions of the Protestants under the Spanish Inquisition, it retained to the Dutch a full share of the commerce that was opened through the discovery of America and the establishment of the Spanish in the West Indies.

The Spaniards and the Dutch were so different in character, however, that there were constant clashes on both sides. Philip was determined to crush the progress of the Reformation, which had made a deep impression, and had spread rapidly in the Netherlands. War broke out almost immediately after Philip had become king of Spain and the smaller states of Holland united in a federation to support the Protestant cause. By the Peace of Westphalia in 1648, the

Netherlands were recognized as an independent power, while the more southern states, constituting what is now known as Belgium, remained under the dominion of Spain and retained the Catholic faith.

139. Political and Historical.—By the Peace of Westphalia in 1648, which closed the Thirty Years War, the Netherlands became an independent state. During the progress of their wars, the Dutch increased in wealth through their activity in trade. They established colonies in the New World and built the finest navy in Europe. The prosperity of the newly recognized state was prodigious and in maritime affairs it shared with England the supremacy of the world. Their achievements in science, literature, and art gained the admiration of Europe.

CHARACTERISTICS

The character of the Dutch is clearly shown in their architecture. Their buildings are plain, matter-of-fact structures, more useful than beautiful. Being a frugal and saving people, they did not erect great monuments with their newly acquired wealth. Their churches were barn-like structures, planned for comfort and convenience, but nothing on a large or monumental scale was projected.

140. In Belgium, the designs were wild and eccentric, but picturesque, while Dutch examples are extremely plain. Brickwork was given much prominence, particularly in domestic architecture, and the design of interiors and furniture was given close consideration.

The fantastic and grotesque extremes of the German rococo influenced the development of the Renaissance in Holland and Belgium, though these countries were extremely slow in accepting the principles of Renaissance art. Long after the beginning of the 16th century, the Flemish architects continued to employ the florid Gothic for both religious and secular structures; and during the time that Holland was a Spanish province there is a strong suggestion of Moorish oddities intermingled with crude German rococo ornament.

287 FIG. 58

EXAMPLES

141. Church du Béguinage.—The Church du Béguinage, Fig. 58, at Brussels, is a typical example of the Flemish style. The absence of building stone in this locality made brick construction the prevailing practice, and the long,

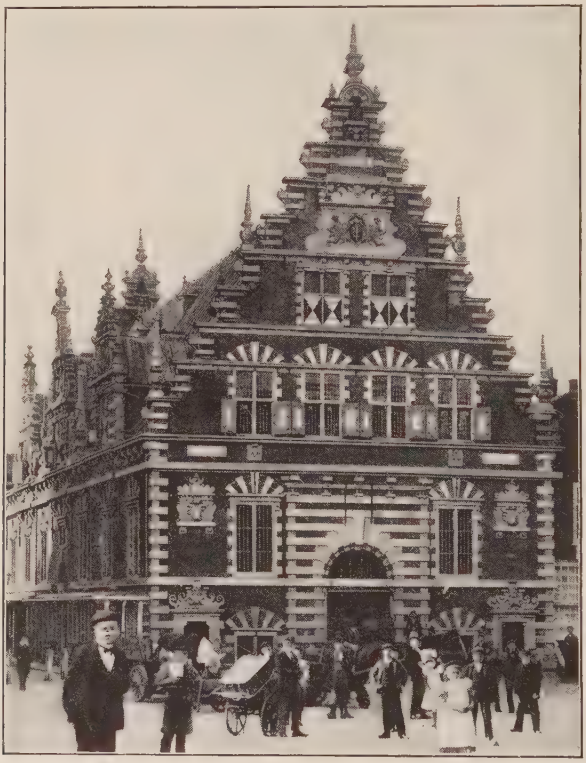


Fig. 59

untapering, Ionic-capped, brick pilasters on the façade of this building show how ignorant the Flemish architects were of the origin and meaning of the forms they were copying. In the second story of the façade, the semidetached composite columns are built up of brick, with a studied entasis, but are backed with pilasters that are straight.

142. The treatment of the gables in Fig. 58 shows to what absurd extremes ornamentation can be carried when not properly understood. The low pediment of Greek art was developed by Gothic architects into the peaked gable to suit the climate of Northern Europe; but here is a gable front that does not conform to the outline of the roof behind it and that falsely declares itself to be the end of that roof. The scrolled outline of this gable, as well as the scheme of decoration around the door and windows, owe their existence to the perverted rococo of Germany; while the circular and elliptical windows are inventions of the later Renaissance in neighboring countries.

The civic architecture that characterized the Late French Renaissance and led to the erection of many public buildings and palaces is not found in the Netherlands, as the strong Italian influences for monumental structures were neutralized by the strong feeling for domesticity. There is really no Renaissance architecture here in the true sense of the term, as the ideas were borrowed not from the classic Roman architecture, but from the French, German, and Spanish interpretations of the classic, and greatly modified by the characteristic desire for simplicity.

The domestic architecture was the model for the civic buildings, and the residences, warehouses, markets, and town halls were simple brick and stone structures with the stepped gables and the liberal windows and with walls but little elaborated with sculptured ornament.

143. **The Market at Haarlem,** Fig. 59, is characteristic of this class of buildings. The stepped gable so prominent in the façade of the dwellings is here enlarged and adapted to a structure of a public character. Alternate courses of stone and brick give variety to the front, while carved cartouches are sparingly introduced into the wall spaces. Scrolls and rococo details borrowed from both France and Germany are adopted as ornament, but with a certain amount of restraint, for excess in anything is contrary to the Dutch characteristics.

ANALYTICAL STUDY

PLANS

144. The development of domestic architecture during the Gothic period established a general system of planning that was followed during the Renaissance.

WALLS

145. Grotesque gables characterize the style throughout. Wild curves, derived from the rococo ornament of France and Germany, where the style was already on the decline, were used in the outlines.

ROOFS

146. The roofs continued to be high and steep, with many elaborate dormer-windows and towers. The chimneys stand out boldly and add to the picturesque grouping.

OPENINGS

147. Windows were numerous and were crowded closely together. Pilasters with fluted or paneled faces flanked the jambs of windows, while entrance doors were treated with columns and entablatures.

MOLDINGS

148. The moldings were coarse and not well proportioned to the material in which they were executed.

ORNAMENT

149. Various grotesque forms were carved to fill panels or other vacant spaces that could not be otherwise utilized. The motifs were usually of Italian origin, but were worked over and corrupted by the Dutch artists until their original form was lost almost entirely. Much carved ornament was executed in wood.

SPANISH RENAISSANCE

INFLUENCES

150. Geographical, Geological, and Climatic.—See Spanish Gothic Influences, *History of Architecture and Ornament*, Part 3.

151. Religious.—The Reformation made no headway whatever in Spain. Charles I, who succeeded to the throne of Ferdinand and Isabella, was appealed to by the pope to help stamp out the heresy started by Luther. As Charles V, he became emperor of the Holy Roman Empire and did all in his power to uphold the Church and the pope. On the abdication of Charles V, Philip II succeeded to the throne of Spain, and endeavored to root out Protestantism both at home and in the Netherlands, by means of the Inquisition. The result of this was the decline of the brilliant career for Spain started under Ferdinand and Isabella and culminating in the empire of Charles V.

The Inquisition was an ecclesiastical court established in the 12th century for the suppression of heresy and the punishment of heretics. It was developed in the 13th century by Pope Innocent III, and its operation extended to France, Spain, Germany, Italy, and other countries. The Spanish Inquisition was put under the control of the king in the 15th century and became noted for the severity of its acts and the number of its victims. Thousands of suspected heretics were burned alive or subjected to the cruelest tortures.

152. Political and Historical.—The opening years of the 16th century found Spain the leading power in Europe. Under Ferdinand and Isabella the Moors had been conquered in the last decade of the previous century, and Columbus

had added to the wealth and glory of Spain through the discovery of America.

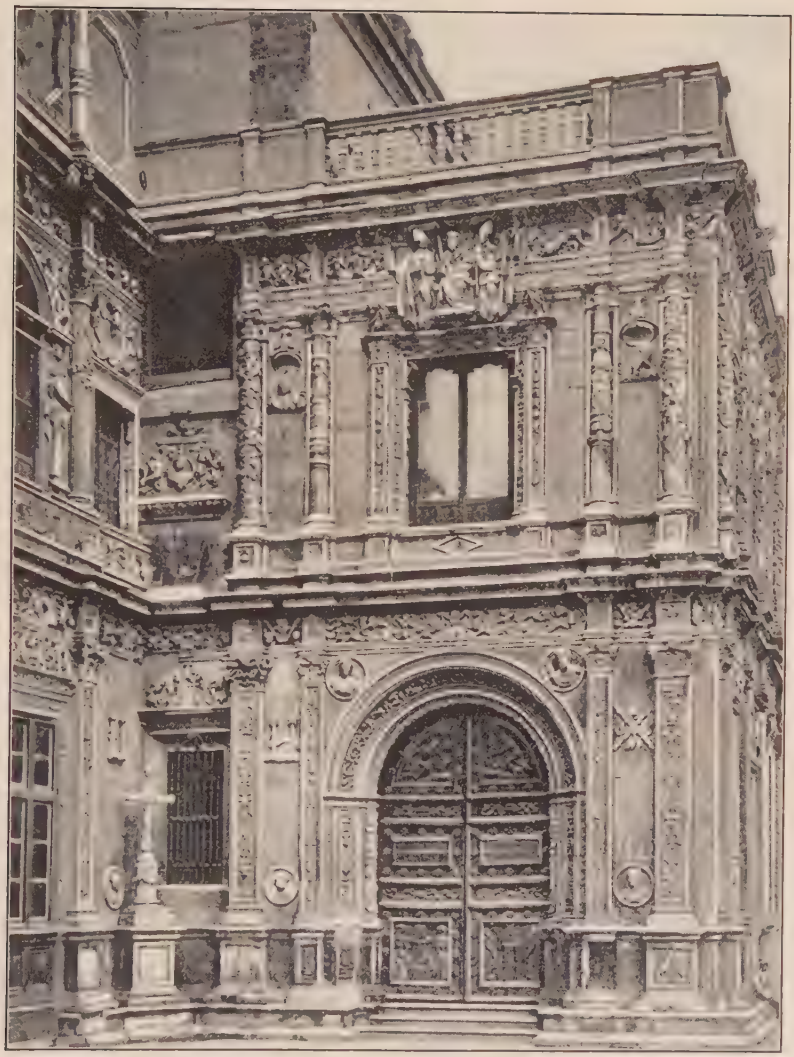
Johanna, daughter of Ferdinand and Isabella, married Philip I, son of Emperor Maximilian. Spain thus became part of the Hapsburg empire. Charles I, their son, succeeded Ferdinand in 1516 as King of Spain, and in 1519, under the title of Charles V, he became emperor of the Holy Roman Empire—a vaster realm than that of any previous monarch except Charlemagne. The severity of his successor Philip II and the Inquisition alienated many of his subjects, and led to the rise of the Dutch republic, which lost the Netherlands to him forever. Spain was later defeated by England, and provinces were gradually lost, so that she made little or no progress during the Renaissance period when other nations were accomplishing so much.

CHARACTERISTICS

153. Spanish Renaissance is rich, florid, and fanciful. The early work is interspersed with details from the Moorish style, while the construction adheres to the Gothic. The details are small and finely executed, little consideration being given to the orders as structural details. Later, the style assumes more classic proportions, and ends in the wild extravagances of the rococo, as it did in other countries.

EXAMPLE

154. Hotel de Ville.—The Hotel de Ville, or City Hall of Seville, Fig. 60, is characteristic of the early period of the Spanish Renaissance. The pilasters in the first story, with their paneled faces and rich arabesque carvings, are not proportioned according to the rules of Vignola, but are designed to suit the existing conditions. In the upper story, the columns are fancifully designed, without a thought of classic precedents, and the carving throughout the façade is executed independently of any hard-and-fast rules derived from Rome.



293

FIG. 60

ANALYTICAL STUDY

PLANS

155. In churches, wide naves prevail, sometimes without aisles. Over the crossing, domes are common, and the transepts are generally small. In residences, the *patio*, or court is almost universal and resembles the inner courts of Italy. Largeness of scale is characteristic of palaces and churches.

WALLS

156. Brick, stone, and granite were freely used. Gables were rarely employed and great wooden cornices were planted on top of the wall surface. In churches, the walls were left plain in stonework on the interior, to be hung with tapestries.

ROOFS

157. The roofs were flat, or low in pitch, and the towers were completed with spires of slate or lead. Interior ceilings are usually richly coffered in wood.

COLUMNS

158. The early columns were light and fanciful in design. Shafts were frequently baluster-shaped and were decorated in low relief (see Fig. 60), a characteristic feature in the bracket capital that appears only in this country. As the style advanced, classic correctness prevailed until superseded by the rococo.

OPENINGS

159. Doorways were emphasized by means of columns, pilasters, or other striking details, and were large in size, owing to the fact that the entrance, or gateway, is a feature

of special importance among the Oriental people, a characteristic inherited from the Moors. Windows were protected by elaborate iron grilles, and were surrounded by a border of carved panels, like a frame, or were flanked with simple, carved pilasters.

MOLDINGS

160. Gothic and Moorish influences combined to produce moldings of great refinement in the Spanish Renaissance. Entablatures are carried out and around detached columns and pilasters, giving a variety of outline and shadow effect.

ORNAMENT

161. The sculpture of this period varies in merit, but is usually dull and wanting in decorative treatment. Tilework in Southern Spain is excellent. Stained glass was vivid in color and showed Flemish influences. Ornamental ironwork, consisting of railings, grilles, window screens, gates, etc., was greatly developed by the Spaniards.

REVIEW EXERCISES

1. Describe briefly the political relations that existed between Germany, Spain, and the Netherlands during the first half of the 16th century.
2. (*a*) What was the Thirty Years War? (*b*) What countries took part in it? (*c*) What was its result?
3. What was the influence of France on German affairs at the close of the 17th century?
4. What commercial advantage fell to the Netherlands when the empire of Charles V was divided?
5. (*a*) What was the Peace of Westphalia? (*b*) What advantage resulted to the Netherlands through the Peace of Westphalia?
6. What was the Spanish Inquisition?

ENGLISH RENAISSANCE

INFLUENCES

162. Geographical.—While England's isolated position was especially advantageous in the development of the Gothic style, which grew up there free from any foreign influences, it was decidedly disadvantageous for the artistic interpretation of the Renaissance style. Gothic architecture and ornament were based on serious problems of construction and types derived from nature, the former being solved by local intellect, and the latter supplied by the local natural growths. Renaissance architecture and Renaissance ornament were one and the same thing by the time the style had affected England. The construction was Gothic, on which the classic architectural forms were grafted purely for decorative effect. At this period, however, the continent of Europe was disrupted by almost constant war, and travel from England to Italy being a matter of great difficulty, few of her architects studied the Renaissance on Italian soil, but rather pursued their investigations in countries nearer home. Ideas borrowed from the Netherlands, where the style was already corrupted, tended to reduce the English Renaissance to a style more freakish and eccentric than that of any other in Europe.

163. Geological.—With the increase of population, wood was becoming scarce, and timber architecture so characteristic of the middle ages gradually disappeared. Portland stone, similar in appearance to the material used in the Renaissance palaces of Venice, influenced the style somewhat, and Holland influences made brick a popular material, particularly in London after the great fire of 1666. The development of a great coal industry cheapened fuel, in

consequence of which nearly every room had its fireplace and numerous chimneys broke the roof line.

164. Climatic.—See Climatic Influences under English Gothic, *History of Architecture and Ornament*, Part 2.

165. Religious.—In the early part of the 16th century, a general upheaval in religious matters was felt all over Europe. The supreme power of the pope over all matters of religion, as well as of state, was found to be irksome to the English, and when the Church began to impose on the ignorance of the people for her own aggrandizement, there was a revolt. King Henry VIII of England renounced the pope as the supreme head of the Church and elected himself to that sublime office. The pope then excommunicated the king from the fellowship of the Church and declared him to have forfeited the allegiance of his subjects.

Henry then had Parliament pass a law to the effect that any English subject that denied the king's right to the title of head of the Church would be held guilty of high treason and put to death. Henry seized and suppressed all the monasteries in England and distributed the lands and money they possessed among his courtiers. The monasteries themselves fell to ruin or were converted into cathedral churches. Others were demolished and manor houses erected on the estates composed of the forfeited lands. Thus arose in England the desire and taste for comfortable residences, which culminated, in the age of Elizabeth, in the characteristic English mansion.

166. Political and Historical.—The reign of Henry VIII in England (1509 to 1547) was contemporaneous with that of Francis I in France. His court included many foreigners whom he had invited to England to further the Renaissance movement.

Among these were Holbein, an artist from Basle, Germany; Torrigiano, a Florentine sculptor and architect, who had studied under Michelangelo; John of Padua, another Italian architect; and several others. A number of schools and colleges were erected at this time with the funds derived from

the suppressed monasteries, and these with their educational systems contributed largely to the development of the style.

Henry VIII was married six times, and three of his children by three different wives were to ascend the English throne. In 1509, he married Catherine of Aragon, a daughter of Ferdinand and Isabella of Spain, who was naturally, like himself, an ardent Catholic. He condemned the Reformation under Luther so strongly that he received from Pope Leo X the title of Defender of the Faith. In 1533, however, when he wanted to divorce Catherine and could not get the papal sanction, he repudiated the pope's authority and married Anne Boleyn. For this he was excommunicated by the pope, but immediately in 1534 caused parliament to pass an act declaring him and his successors to be head of the church. He had Anne Boleyn beheaded in 1536, and the day after the execution he married Jane Seymour.

Henry died in 1547 and was succeeded by Edward VI, his son by his third wife, Jane Seymour. Edward reigned 6 years and encouraged the Reformation; then his half sister Mary, daughter of Henry's divorced wife, Catherine of Aragon, came to the throne. Mary restored the Catholic faith and to strengthen it she married Philip II of Spain, but when she died in 1588, Elizabeth, daughter of Henry's second wife, Anne Boleyn, ascended the throne.

167. The reign of Elizabeth was the most progressive era in the history of the country. Elizabeth restored Protestantism as the state religion, and the Catholic powers of Europe formed many schemes to dethrone her and elect a Catholic in her place. Spain was particularly aggressive in this, and finally attempted an invasion of England by land and sea. A fleet of 129 ships therefore set out with 20,000 men to cooperate with a further land force of 34,000 that was to join them from the Netherlands. This expedition was a total failure. The fleet was practically destroyed, the land force discouraged by the outlook, and consequently the power of Spain in the affairs of Europe reduced to nothing. Protestantism gained in strength and the Huguenots in France took courage.

Elizabeth continued the good work of school building and encouraged the erection of great domestic mansions. Workmen and weavers came to England in large numbers from the Netherlands and Germany, and later, numerous Huguenots came over from France, thus influencing the style materially with much foreign feeling and detail. After Elizabeth came her uncle, king of Scotland, who ruled in England as James I from 1603 to 1625.

Charles I reigned from 1625 to 1649, but he constantly disagreed with the parliament and civil war broke out with the result that the king was beheaded in 1649. England was then governed as a Commonwealth under Cromwell, the leading general in the late war on the parliament side, but the Commonwealth became unpopular and the people clamored for the return of royalty, so Charles II, son of the beheaded monarch, was crowned in 1660 and reigned until 1685. Charles was too much under the influence of France, and inflamed the people by the extravagances of his court and his leaning to the Catholic faith, and when his successor, James II, came to the throne in 1685 and further favored the Catholic party, parliament invited foreign interference from the Netherlands. The king's daughter, Mary, had been married to William, Prince of Orange, and was a Protestant. William and Mary were invited to take the English throne and in 1685 they landed at Torbay with 15,000 men. James II fled to France, where he died later, a pensioner of the court of Louis XIV.

After William and Mary came Anne (1702 to 1714), second daughter of James II.

After the rise of Holland and when William of Orange came to the throne of England, architecture was much affected by Dutch details; and later, when George I of Hanover became king, a period of development in domestic architecture set in that lasted until the middle of the 18th century.

CHARACTERISTICS

168. English Renaissance may be divided into three general periods: the **Elizabethan**, the **Anglo-Classic**, and the **Classic Revival**. Some authorities make further subdivisions, but, generally speaking, the ones just mentioned comprise the only real differences.

When the great Renaissance movement was born in Italy, which was then the ecclesiastical center of the world, it was impossible that its influence should not be felt in every Christian country. The force of this influence was checked in England by the break between the English church and the pope. The influence of Italy is shown in the regularity and symmetry of the plans and in the attempt to use the orders, but with a very indefinite idea of their proportions. Otherwise there was little to associate Elizabethan architecture with the Renaissance of Italy. There is neither the spirit nor the intelligence expressed in the Italian style, but there is a charm and simplicity about it that renders the Elizabethan mansion unique and characteristically English. As the majority of the great families lived in the country, their homes were enhanced by the simple rural surroundings, gardens, terraces, and exterior adjuncts that contribute to the establishment of the perfect country seat.

With the Anglo-Classic period came the days of Italian books, study, and travel. English architects studied in Italy and in France. The distinctive English characteristics of suitability and unpretentiousness gave way to complication of plan and elaboration of exterior in order to display the classic details. Much was planned for show and little for comfort.

The Classic Revival period was similar to the Empire period in France, when Greek and Pompeian ideas superseded the Roman orders and details. Libraries, museums, galleries, banks, etc. were designed, but appeared to be Greek temples and tombs. These incongruities rendered the style short lived, and many designers abandoned the classic and endeavored to institute a revival of the Gothic.

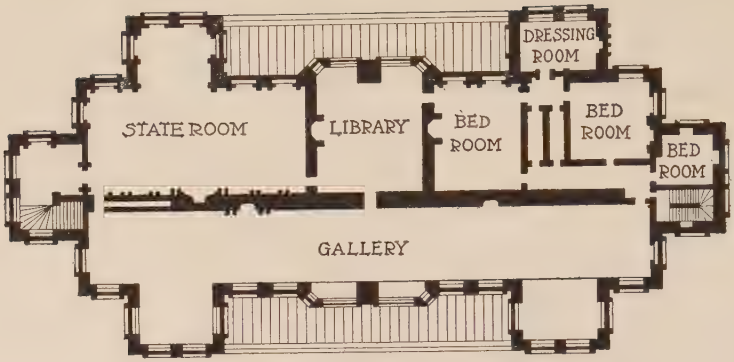
ANALYTICAL STUDY

PLANS

169. The Renaissance in England presents practical designs in house planning with consideration for the comforts and conveniences of the occupants; and from the Elizabethan plan have been derived many details that characterize the homes of the present day.

Two types of plan were adopted at this time—one, where a long hall connected the kitchen and offices at one end of the building with the living room at the other end, and the other where the plan was quadrangular, with a central court, as in the middle ages. The latter plan was improved by the omission of the buildings on one side, thus converting it into an **E** shape, as at Hatfield House, Fig. 60, *History of Architecture and Ornament*, Part 3. Later, the wings were extended on each side and the plan became **H**-shaped.

The principal details of the plan were the *great hall* —inherited from the medieval period—which was usually wainscoted in oak nearly to the ceiling; the *minstrel gallery*, which was located at one end of the hall, above a tall oak screen; the *dais*, or *raised platform*, which was enclosed in a bay window whose sill came nearly to the floor; and the *great-hall fireplace* with elaborately carved coat of arms of the owner. The staircase was also an important detail in all Elizabethan mansions. It was designed with heavy newels, pierced balustrades, and richly carved details. It owed its prominence to the fact that many of the most important rooms were on the second floor and therefore demanded a monumental means of approach. Another characteristic detail of the Elizabethan house was the *long gallery*, as shown in Fig. 61 (*a*). This gallery was usually located in an upper story and often extended the full length of the house. The side walls were paneled and the ceilings were richly decorated in plaster ornament.

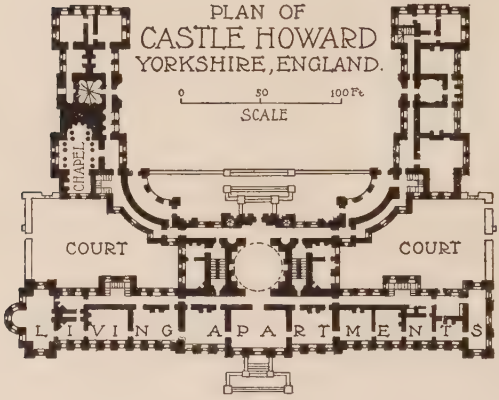


PLAN OF SECOND FLOOR OF HARDWICK HALL.

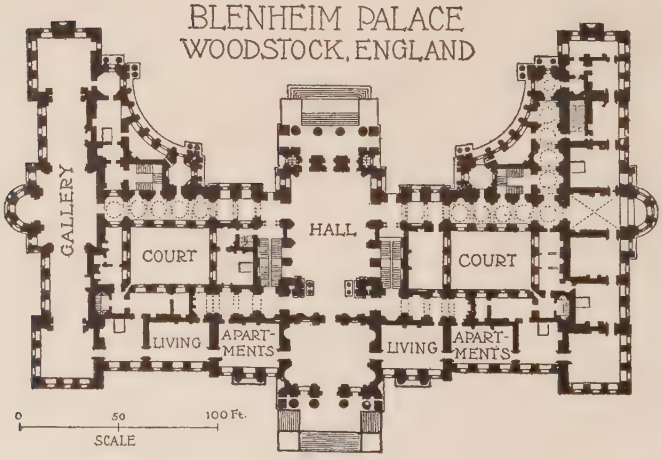
0 50 100 Ft.

SCALE

(*a*)



(*b*)



(*c*)

FIG. 61

FIG. 62

WALLS

170. The elevations were freely treated, with the classic orders used in a rather grotesque form and interspersed with much intricate ornament of either Flemish or German origin. The tower of the Old Schools at Oxford, Fig. 62, erected about 1612, presents a unique example in which all the five orders are introduced. These columns are superposed one over another, with the Tuscan at the bottom and the composite at the top. The gables, or pediments, consist of scrollwork combinations, somewhat after those of Holland, but with much pierced screenwork and balustrades. At a later period, the classic pediment was used more intelligently, and over the gate of Caius College, Fig. 63, erected in the years 1665 to 1674, are found a tetrastyle portico used as a decorative wall detail.

FIG. 63

The chimneys were a characteristic feature, sometimes being elaborately treated with orders and at other times carried up in cut brickwork, thus playing an important part in the sky line of the roof. Where battlements surmounted the walls in the Gothic period, parapets are now found pierced with elaborate fretwork and scrollwork designs, or arranged with balustrades and pilasters or with newels.

ROOFS

171. The roofs were both high in pitch, after the Gothic model, and low and flat, after the classic style. They were covered with either lead or tile, and in some districts, with stone slabs. In nearly every case, the roofs were surrounded by the characteristic pierced balustrades. The gables took fantastic forms, with curved or stepped outlines, as in Holland.

COLUMNS

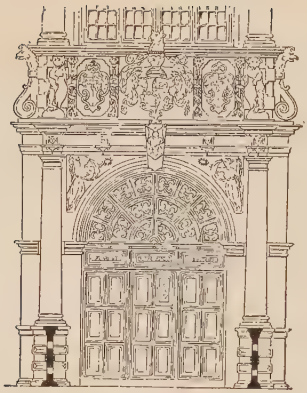
172. The columns are founded on classic orders, but with a great variety of treatment. They frequently tapered toward the base, without entasis, and sometimes they were designed with bulbous swelling, somewhat after the classic balustrades. Pilasters flanking window openings were a prominent detail on the exterior. These were paneled and decorated in strapwork ornament or sometimes fluted as in Italy.

OPENINGS

173. The cheapness of glass rendered large square windows an important feature and these were flanked with pilasters so as to emphasize the structural character of the opening, whereas in Italian work the pilaster was used on the exterior simply to subdivide the wall surface. See Fig. 16. Bay windows were a prominent feature, as may be seen from the plans shown in Fig. 61. Large, mullion windows with transoms are as characteristic as they were in the Late Gothic period. The doorways were elaborately studied, with the orders carried above them several stories, as in the Old Schools at Oxford, Fig. 62.

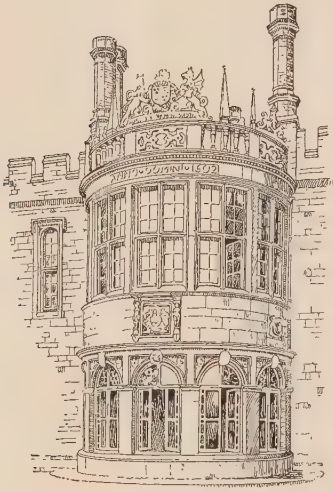
MOLDINGS

174. The moldings are coarse and crudely carved, but are based on classic models. The characteristic cornice consists of a large cyma supported on a small ogee, over a rather shallow corona.



(*a*)

(*b*)



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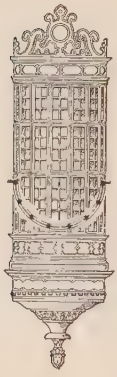
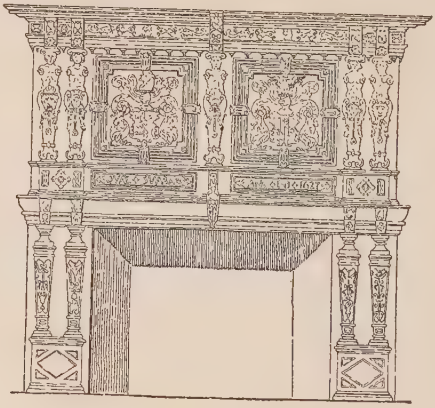
(*d*)



(*e*)

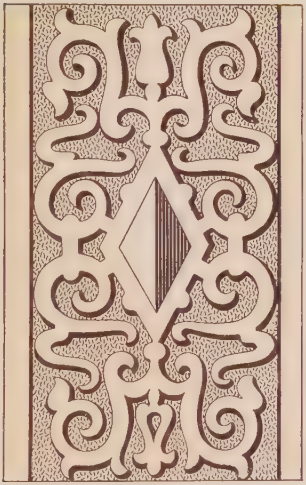


(*f*)

FIG. 65

(a)

(b)



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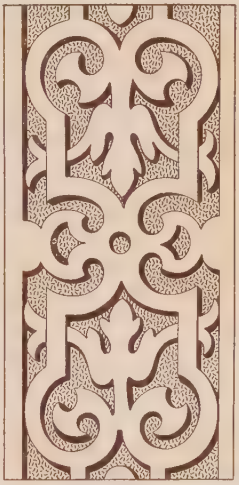

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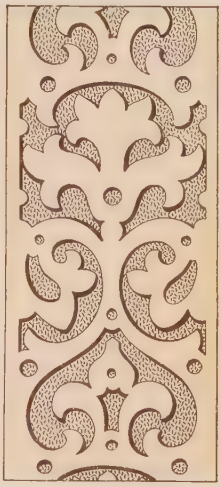
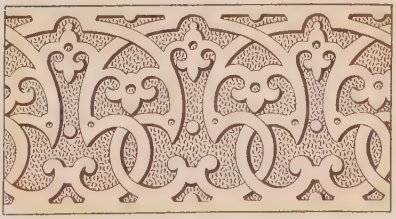


(e)

(f)

(g)



(h)

(i)

FIG. 64

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ORNAMENT

175. The characteristic ornament of this period consists of a strapwork design interlaced with scrolls and grotesque patterns, as shown in Fig. 64, which were apparently secured to the ornamented surface by square-headed nails or rivets. This style of decorative treatment was used on pilasters, panels, spandrels, etc., and even pierced through parapets to form a sort of openwork balustrade, as shown in Fig. 65 (*a*). Grotesque figures were used on newels and as terminals to supports, instead of regularly molded columns and capitals as in (*f*). Some columns were rusticated by the introduction of prismatic forms that were either carved in the shaft or inserted in colored stones, as in (*d*). Plaster was run in molded panels for ceilings, and considerable richness of design resulted from this treatment. Pyramidal finials were carried on pedestals over screens and bays, as in (*b*), and molded strapwork filled the spandrels, as in (*d*). Bay and oriole windows characterized the exterior walls of the residences, as in (*c*) and (*e*), and the chimney stacks were carried high above the parapet walls and battlements in octagonal prisms.

The details of ornament shown in Figs. 64 and 65 can be classified as Renaissance on account of their historic period rather than on account of their classic spirit. England was not in harmony with the Italian movement and borrowed many of her ideas from Holland, which, being a Protestant country, was more in sympathy with the English church. The Gothic ornament, which was the expression of true structural conditions, still influenced the English style as to form, but the Elizabethan ornamentation was independent of construction even when based on Gothic types. The lath-and-plaster vaults of the Italian corridors, and the deeply coffered ceilings with plaster beams and ornament, influenced England only so far as material was concerned, but until the Anglo-Classic period, when direct study of the Italian forms led to their better appreciation, the ornament of the English Renaissance was meaningless and superficial.

ELIZABETHAN PERIOD

176. Although 50 years later in date, the Elizabethan style in England corresponded with the Francis I period in France, inasmuch as it was the transition style from the old to the new forms. During the reigns of Henry VII and Henry VIII, the Gothic style was on the decline, and with the Reformation came the desire for the new forms, which were grafted on the Gothic constructions without consideration for their classic purposes. The new forms that were revolutionizing architectural design in other countries were essentially Italian, and to the English reformers anything that was Italian was a reminder of the Roman church. The Elizabethan architects therefore endeavored to introduce forms that were not directly of Italian origin, or that were so modified that all associations with the unpopular religion were eliminated. The Renaissance details of Italy were therefore scorned as Catholic, but their modifications as found in Holland and France were adapted to English conditions.

The most important examples of the Elizabethan period are country houses; and landscape gardening thus became a distinctive feature of the style. The structural details so characteristic of the Gothic were long retained; hence, many uses were made of the tower, the bartizan, the oriole window, the mullioned bay, etc. The Elizabethan style not only applied Italian architectural forms to English Gothic constructions, but also borrowed ornament for the same purpose from all the ornamental arts in furniture decoration, etc.

177. As classic literature and models became better known and the use of the orders became more general, the style developed toward a crude classicism, sometimes termed the *Jacobean period*, as it was identified with the reign of James I, who succeeded Elizabeth. The planning remains about the same, but the ornamentation and furniture introduced all sorts of grotesque absurdities that never found a place in classic art.

ANGLO-CLASSIC PERIOD

178. The Anglo-Classic period extends from 1625 to 1702, and includes the reigns of Charles I, Cromwell, Charles II, James II, and William and Mary. As in the Italian school, the classic period of English Renaissance was popularized by the work of individual architects, the first of whom were Inigo Jones and Sir Christopher Wren. Inigo Jones took a long course of study at Vicenza, Palladio's native town. Palladio was the favorite master of Jones, and the works of this Italian architect had much influence on the designs executed in England after Jones returned.

The greatest undertaking of Inigo Jones was the design for Whitehall, the royal palace at London. This was one of the grandest conceptions of the Renaissance, but only the banquet hall was ever built. The plan, Fig. 66 (*a*), was arranged around courtyards, one of which was to be circular and surrounded by a peristyle, and the great central court would have equaled that of the Louvre. The banquet hall, Fig. 67, is certainly as dignified a composition as will be found in the English Renaissance. It was treated as a two-story structure on the exterior, while the single room it consisted of was two stories high, with a balcony on the interior from which the second-story windows opened.

179. Sir Christopher Wren was a mathematician, and his early training fitted him for the great structural problems that he solved in his latter works. He did not possess an architectural education equal to the one that Jones had received in Italy, but he studied the art in France while the Louvre was undergoing reconstruction, and all his work shows the influence of the French school quite as strongly as the work of Jones shows the Italian style. This is particularly evident in the decorative detail. Wren probably built more churches than any other architect.

The great fire of London, which occurred in 1666, destroyed 89 churches and over 13,000 houses in less than a week.

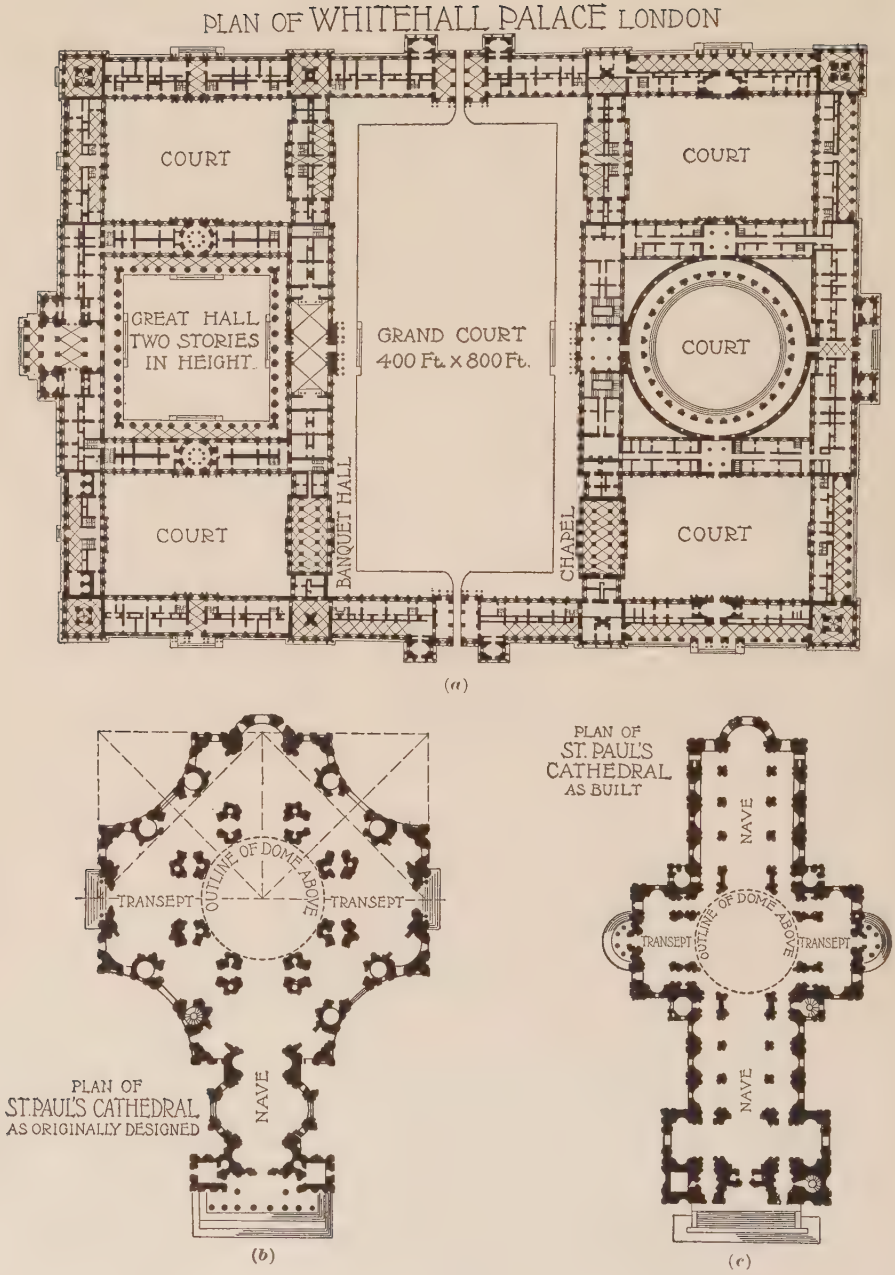
PLAN OF WHITEHALL PALACE LONDON
COURT
COURT
GREAT HALL TWO STORIES IN HEIGHT
GRAND COURT 400 Ft. × 800 Ft.
COURT
COURT
COURT
BANQUET HALL
CHAPEL
(a)
PLAN OF ST. PAUL'S CATHEDRAL AS ORIGINALLY DESIGNED
TRANSEPT
OUTLINE OF DOME ABOVE
TRANSEPT
NAVE
(b)
PLAN OF ST. PAUL'S CATHEDRAL AS BUILT
NAVE
TRANSEPT
OUTLINE OF DOME ABOVE
TRANSEPT
NAVE
(c)

FIG. 66

FIG. 67

Before the embers were cold, Wren set before the king a scheme for the restoration of the city. The plan was not accepted, but Wren rebuilt 52 churches, including St. Paul's Cathedral.

FIG. 68

180. St. Paul's Cathedral.—St. Paul's was Wren's masterpiece, and ranks with the finest Renaissance cathedrals in Europe. His first plan, Fig. 66 (*b*), presented a Greek cross with an extended west arm laid out with geometrical precision. The clergy, however, objected to this,

as it was a digression from the medieval style of planning. Wren then made a plan in the form of a Latin cross, Fig. 66 (*c*), with the great central space at the crossing crowned by a dome of magnificent proportions, as shown in Fig. 68.

The exterior of St. Paul's is designed in two stories, as shown in Fig. 68, the upper one being a mere screen to hide the buttresses and clearstory, as shown in Fig. 69 (*a*), which is a transverse section across the nave—a deception that illustrates the impracticability of the classic decoration on the Gothic construction. If the buttresses had been permitted to show on the exterior, they would have been incongruous with the classic detail; and, on the other hand, had the roof been constructed according to the Roman methods, the building would have been ill suited to the purposes of a Christian church.

181. The most important feature of the design is the dome over the rotunda. This detail is also an architectural deception practiced to heighten the effect of the design on the exterior. If the dome were hemispherical and poised directly over the vault of the nave, as in the Byzantine churches, it would have added dignity to the interior without being at all visible on the exterior. Had it been designed to suit the exigencies of the exterior design, it would have appeared strangely lofty and out of place from within. Therefore, in order to reconcile these two conditions, Sir Christopher built a dome over the rotunda to secure the desired interior effect, as shown at *a*, Fig. 69 (*b*); around the circumference, and independent of this dome, he constructed a conical brick roof *b*, on top of which is supported the stone lantern *c*, and around the sides of which a wooden dome *d* is built entirely for exterior effect. This exterior dome, rising from a high drum surrounded by a peristyle of Corinthian columns, gives to the design an expression of dignity and majesty that would otherwise be entirely lacking; while the campaniles, or bell towers, and the two-story porch on the west front combine in an admirable grouping with the dome itself.

TRANSVERSE SECTION
ST PAUL'S CATHEDRAL
LONDON
SCREEN WALL
AISLE
NAVE
AISLE
a
b

(a)

SECTION
ST. PAUL'S CATHEDRAL
THROUGH
DOME AND TRANSEPTS
a
b
c
d

(b)

FIG. 69

182. Church of St. Mary le Bow.—Wren's smaller churches were well studied in plan and detail. It may be said that he of all architects was most successful in applying classic details to spires. His best work in this particular

Fig. 70

was the church of St. Mary le Bow, Fig. 70. The tower is rectangular in plan to a height of 112 feet, and is then surmounted by a circular peristyle supporting inverted consoles under the lantern. The diminution in size as the spire rises

FIG. 71

FIG. 72

is admirable, and the inverted consoles give a variety to the outline that could have been attained in no other way.

183. Church of St. Bride.—Another unique design of Sir Christopher's is the little church of St. Bride, Fig. 70. Here, the square tower is carried up to a height of 123 feet, and the diminution of the spire is effected by a series of five decreasing arcades supporting a cone.

184. Other Examples by Wren.—Besides the churches that he built, Wren was called on to design more royal palaces than any other architect, before or since his day, but in this field he did not meet with the success that crowned the majority of his ecclesiastical designs.

The palace at Winchester was little more than a big brick barrack, to which purpose it has since most appropriately been applied. He was more successful with Hampton Court, though the design shows a want of proper study. The architectural orders are plastered on simply as exterior ornaments, and the entire façade is tame and meaningless. Chelsea College is probably the poorest design bearing Wren's name ever erected, but he partly redeemed his fame in the one at Greenwich, though this is not up to his standard.

When Sir Christopher Wren died, in 1723, he was succeeded both in practice and position by Nicholas Hawksmoor and Sir John Vanbrugh. The former was a pupil of Wren's, and was employed to carry out a great deal of his work.

185. Works of Vanbrugh.—The works of Sir John Vanbrugh are all expressive of his one aim and desire, namely, to express in design a feeling of grandeur and eternity. Had his efforts been devoted to mausoleums and monumental structures, he might have made much more of a success; but as his productions were almost entirely palaces and villas, his energy was spent in the wrong direction. Blenheim Palace, Fig. 71, Castle Howard, Fig. 72, Seaton-Delaval, and Grimsthorpe all bear the stamp of his ambition.

186. Blenheim was to Sir John what St. Paul's was to Wren—the opportunity of his lifetime, by which he would be

judged and with which his name would be handed down to posterity. To build a monumental palace in a noble park on such a scale, and to be backed by the nation's purse, was in reality a greater opportunity than Wren had before him when he built a metropolitan cathedral, hampered by liturgic difficulties and jealous criticisms.

Nothing can well be grander than Sir John's plan and general conception of Blenheim Castle, as shown in Fig. 61 (*c*). The garden front, 323 feet in length, was flanked on one side by the private apartments and on the other by a

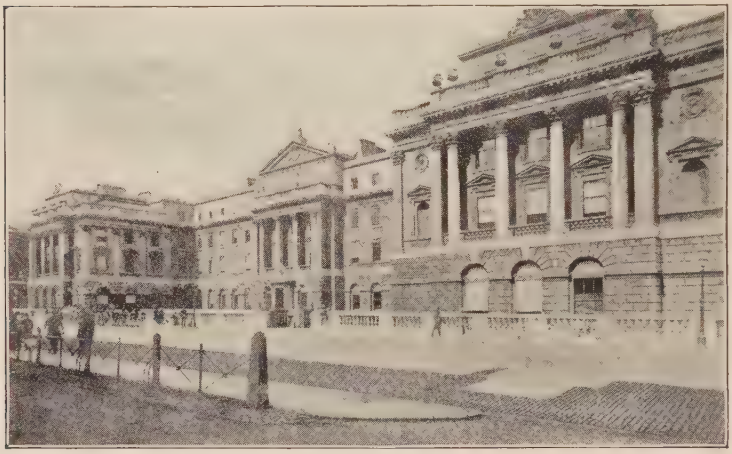

Fig. 73

magnificent library 182 feet from front to rear. In designing the façade, he carefully avoided all the faults of Versailles, which was the typical palace of the day, as well as the tameness that was the feature of Winchester and Hampton Court.

187. Castle Howard, Fig. 72, was erected by Vanbrugh about the same time as Blenheim. It is similar in plan to Blenheim, but much smaller, though his skilful treatment of the façade has made it appear much larger than it really is.

188. Somerset House.—Somerset House, Fig. 73, erected by Sir William Chambers toward the end of the 18th century, was a very successful design, though far

beyond the ability of the architect. The bold, rusticated basement supports a range of three-quarter Corinthian columns, and a well-proportioned balustrade surmounts the whole in a pleasing and artistic manner.

FIG. 74

189. Church of St. Martin.—The church of St. Martin in the Fields, Fig. 74, by James Gibbs, shows the growing tendency toward the complete revival of classic forms. Were it not for the tower and spire this structure might readily pass for an amphiprostyle Corinthian temple. The plan is rectangular with a projecting portico at each end.

The entablature is carried entirely around the building, being supported by pilasters at the sides. The spire is pleasingly proportioned and is octagonal in plan, springing from the top of a square tower.

REVIEW EXERCISES

1. What contrasting influences did England's geographical position have on her Gothic and Renaissance architecture?

2. Describe briefly what religious influences led to the establishment of the great English manor houses.

3. What foreign artists and architects influenced the English Renaissance?

4. What was the most progressive period of the English Renaissance?

5. What are the distinguishing characteristics of Elizabethan architecture?

6. Describe the characteristics of English Renaissance ornament and illustrate by sketches, if necessary.

7. (*a*) What two native architects developed the Renaissance in England? (*b*) What were the chief works of each?

8. What religious conditions checked the force of Italian influence in English architecture at the beginning of the Elizabethan period?

9. (*a*) What sovereigns ruled in England from the middle of the 16th to the end of the 17th centuries? (*b*) Which of these favored the Church of Rome, and which supported the Church of England?

10. What two men succeeded Sir Christopher Wren as leading architects of the period?

CLASSIC REVIVAL

CHARACTERISTICS

190. The essential difference between the architecture of the Renaissance and that of the Revival period may be defined as follows: The former was the adoption of classic Roman details to modern forms, while the latter required the complete subjugation of modern forms and necessities to accommodate the plan and arrangements of a Greek or a Roman temple. Although classic details only were used in St. Peter's and St. Paul's, these structures would never be taken for anything but Christian churches. Whitehall and Versailles were the residences of the kings of the age in which they were built, and pretend to be nothing more. No one could think of St. Peter's as a Roman temple, and Versailles is as unlike the palace of the Cæsars as a building possibly could be, and so it occurs throughout the three centuries during which Renaissance was practiced. But, the Walhalla, at Ratisbon, pretends to be an exact reproduction of the Parthenon, and the Madeline, at Paris, is intended to be the counterpart of a Roman-Corinthian temple. St. George's Hall, Liverpool, is supposed to contain no feature later than the age of Augustus. Thus the early years of the 19th century were the beginning of a period of architectural slavery never before equaled. Architects no longer required originality, and the one that possessed it was supposed to suppress it entirely and to reproduce some pagan building, line for line, fitting his purpose to the classic form the best way he could, regardless of convenience, character, or tradition.

191. In Italy, there was, strictly speaking, no Classic Revival, as the Renaissance so thoroughly suited the tastes and requirements of the people that there was no demand

for a change. In France, the frivolous designs and details of the period of Louis XV had become tiresome, and the prosperity of the country had so increased that the public impression seemed to be that the empire of France was to be the successor of that of ancient Rome. Severity and dignity of design, rather than delicacy and frivolity, was therefore demanded, and the duplication, line for line, of Roman temples was the method of its accomplishment.

In Germany, however, the Renaissance style had been such a failure that the country was not inclined to adopt any more Roman forms, and an adoption of purely Greek designs was substituted; while in England, the influence of Palladio during the Renaissance was still sufficient to modify the style when Great Britain adopted the Greek Revival.

The effect of this revival in all countries was to increase the dignity and monumental effect of the streets at the expense of the convenience and practicability of the plans. Public squares and parks, surrounded by colonnaded buildings and deep porticos, were very fine to look at, but the porches and colonnades darkened the buildings and rendered them unfit for the purpose of their erection.

The Classic Revival period might be considered the result of too much education. Previous to the Renaissance there had been no general learning, and art forms had developed naturally from the constructive principles of the works in hand. There was but one general style available and this was based upon the fundamental principle of construction. The architecture of the castle was far different from the architecture of the cathedral, yet both were unmistakably Gothic.

With the Renaissance came the knowledge of a highly refined civilization. Buildings were erected with the old scientific construction, but the new classic ornament was used to embellish the structural features. Then architects traveled from all parts of Europe to study in Rome and buildings were embellished with complete Roman orders instead of fragments of classic ornament. Later, architectural students returned with actual measured drawings of existing buildings, and architecture fell from a fine art to an imitation.

CLASSIC REVIVAL IN FRANCE

192. In France, the Classic Revival made its appearance during the reign of Louis XVI, and the tendency toward it can be seen even before that. The Hôtel des Invalides, Figs. 45 and 76 (*a*), erected during the reign of Louis XIV, shows nothing but the most servile imitation of Roman forms, but at the same time admits the necessity of windows, which are grouped to harmonize with the design.

FIG. 75

193. Church of St. Genevieve, or Pantheon.—In the Pantheon, at Paris, Fig. 75, however, we see a noble building architecturally asserting itself to be a Roman temple, when, as a matter of truth, it is a Christian church dedicated to St. Genevieve. In plan, Fig. 76, this structure presents a Greek cross 362 feet long and 267 feet wide, over the intersection of the arms of which rises a dome that is 265 feet in height and 69 feet in diameter. The whole

exterior, as shown in Fig. 77, is a cold, severe, but extremely refined, composition. The elegant portico of colossal Corinthian columns, and the fine peristyle around the drum of the dome, combine to characterize the design as one of great dignity and effect. The sides are plain wall surfaces,

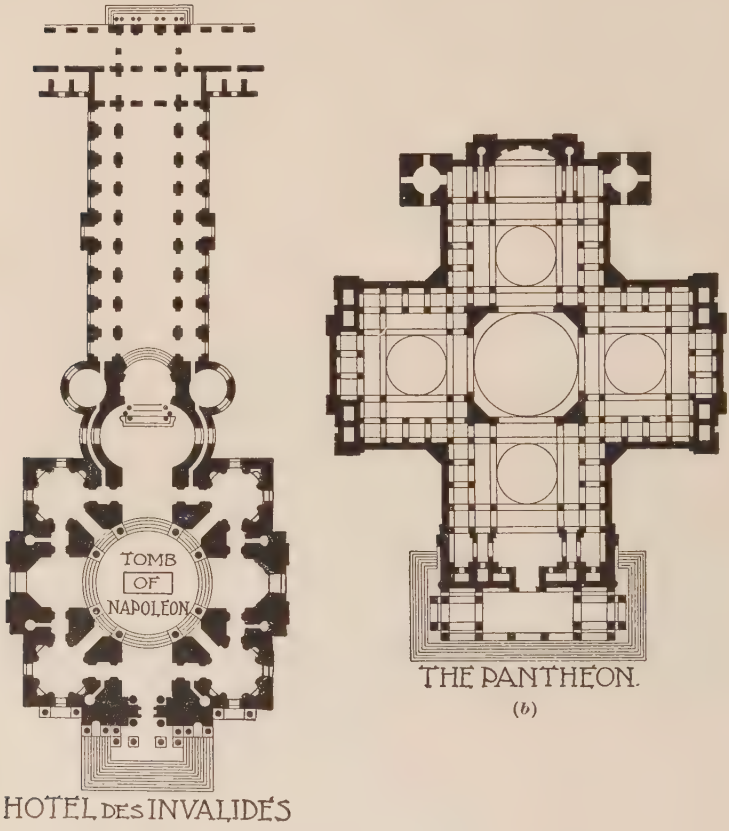

FIG. 76

unbroken by window openings or carved ornaments, except the festoons along the frieze under the cornice. Light is admitted through the roof, the greatest care and ingenuity having been exercised to hide the fact that interior illumination of the edifice was necessary.

325

FIG. 77

Fig. 78

194. The Madeline at Paris.—The Madeline, Fig. 78, is even more extreme in the effort to depict a purely pagan design than is the Pantheon. Here, there is what appears to be a Roman-Corinthian peristylar temple, every line of which is carefully proportioned according to classic antecedents, though its purpose is to provide a place for Christian worship. Classic as this structure may appear in design, it

Fig. 79

is certainly not so in construction. Each column is built up of small pieces of stone, the joints of which materially interfere with the effect of the fluting. The lintels that span the intercolumniations of the peristyle are not single stone beams as in the temples of Rome and Greece, but are constructed of voussoirs, like a flat arch. In ancient columnar architecture the spacing of the columns was governed by the length of lintel that could be conveniently quarried; hence,

the intercolumniations were comparatively small. In the Madeline, the intercolumniations are still maintained according to the ancient standard, though there is no structural necessity for it. However, the Parisians desired their city to be a second Rome, and in order to carry out the appearance, they confined their architectural designs to the duplication of Roman edifices of historical renown.

195. Arch du Carrousel.—The effort to make Paris a second Rome was not confined to architecture entirely, but the manners, customs, and even the dress of the people were as close an imitation of the days of ancient Rome as the climatic and geographical conditions would permit.

Streets and public squares were embellished with columns of victory and triumphal arches, and statues of heroes adorned the parks. The Arch du Carrousel, Fig. 79, was erected to commemorate the triumphs of Napoleon in the campaigns of 1806. It stands at the head of the Avenue Champs Elysees, the finest and most monumental thoroughfare in Paris, and in the center of the outer court of the Louvre Palace. (See Fig. 87.) At the opposite end of the Avenue Champs Elysees, two miles distant, stands another memorial arch 160 feet in height and elaborately sculptured with characteristic and symbolic groups of figures. In the Palace Vendome, not far from the Louvre, stands a column 140 feet in height, carved in low relief, commemorating Napoleon's campaigns in 1805. It is similar to Trojan's column in Rome, Fig. 86, *History of Architecture and Ornament*, Part 1. Numerous other monuments of a similar character were erected at later dates throughout Paris, most of which were of Roman rather than Greek model, as the empire of Napoleon was overthrown in 1815 and the monarchy restored.

CLASSIC REVIVAL IN GERMANY

196. In Germany, the Classic Revival wasted little time on Roman forms. This was due partly to the fact that the Renaissance had been so misunderstood, and partly to the inappropriate associations of Roman pomp and splendor with Germany's condition of finances. The long war between the Catholics and Protestants in the 17th century had nearly ruined Germany, while it had caused France to become the leading nation of Europe; and the next hundred years added but little to Germany's interests, while France continued to grow in power.

The German's taste then inclined to quiet and retiring ideas, and the recently discovered art treasures of Greece appealed strongly to his instincts. The literary works of the German poets, Lessing, Goethe, and others, diverted the public mind to the study of Greek art, and the discoveries of Stuart and Revett, and their publication of the "Antiquities of Athens," gave the contemporary architects models by which to be governed.

197. **The Walhalla.**—In this period Leo von Klenze erected, at Ratisbon, a monumental structure known as the Walhalla, which was exteriorly an exact model of the Parthenon, two-thirds the dimensions of the original at Athens. This architect saved himself an immense amount of responsibility by copying so celebrated a building, and while praise may be due him for the accuracy of the reproduction, he is certainly deserving of the most severe criticism for the erection of so classic an edifice on a lone hill, where its sole surroundings are the high roofs and slender spires of the German villages.

198. **The Ruhmeshalle.**—The Ruhmeshalle, at Munich, Fig. 80, is **E**-shaped in plan, with a colossal statue of Bavaria occupying the central portion. It was erected to contain the statues of Bavaria's great men, and was dedicated to their memory. Although it was not copied after any Greek building, it is purely Greek in design and is correct in form and

FIG. 80

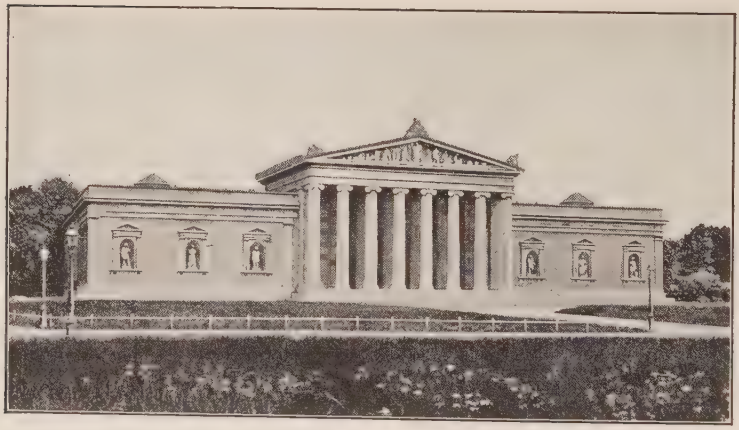

FIG. 81

proportion down to the smallest detail. It forms a fitting background, and adds dignity to the colossal figure in front, without appearing unsuited to its surroundings, as did the Walhalla as just stated.

199. The Glyptothek.—The Glyptothek, or sculpture gallery, at Munich, Fig. 81, was designed by the same architect as the Walhalla. Though not a servile copy like the former structure, its most original feature, the Ionic portico,

FIG. 82

is its strongest defect, being out of proportion and distinctly unrelated to the detail of the surrounding parts.

200. City Gate at Munich.—In the city gate of Munich, Fig. 82, Von Klenze was much more successful. The somber dignity of the Grecian-Doric order appears well suited to the purpose of this structure, and seems to have been well understood in principle by the architect. The design, though thoroughly Greek in spirit, is at the same time sufficiently modern to prevent the feeling that the intent and purpose

of the monument has been in any degree sacrificed in order to suit the conditions imposed by the style.

201. Parliament Houses at Vienna.—The parliament houses at Vienna, Fig. 83, unites with a dignified composition of pilasters and entablatures supported on a substantial base, a caryatid portico that in no way harmonizes with the rest of the design.

Fig. 83

202. The Greek Revival in Germany presents the aspect of a sincere striving for beauty on the part of a few talented architects, who labored under the false impression that the forms and details of an ancient and extinct civilization were suitable to the conditions of society as it existed at the close of the 18th century. The period is marked by examples of excellent planning, admirable construction, and most carefully studied detail; but it failed from an artistic standpoint through the lack of harmony in social, religious, and political conditions of two peoples living twenty-two centuries apart.

CLASSIC REVIVAL IN ENGLAND

203. Of the Classic Revival in England there is little in praise to be said. The modified Palladian style of Wren and his successors continued until superseded by the Greek Revival, which never succeeded in combining any two features of beauty and utility. A plain façade, with unmolded rectangular windows, was embellished with a four- or a six-columned Ionic portico and called Greek; or, a street front was erected without any windows, and covered with a sculp-

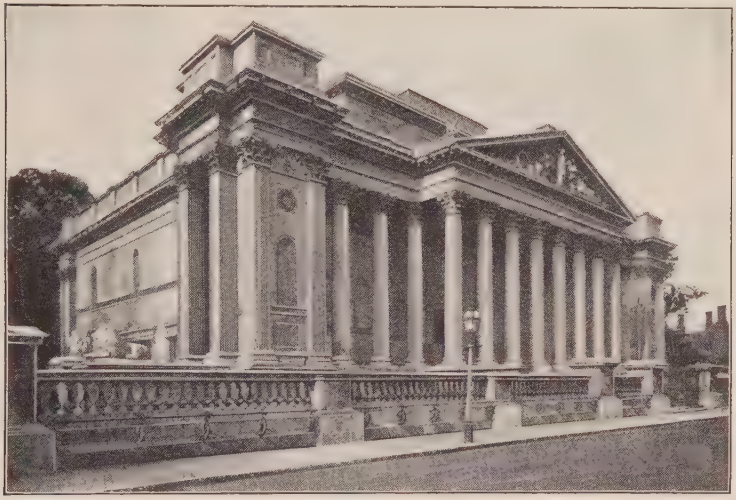

Fig. 84

tured pediment, to establish its style of architecture, while in the rear a multiplicity of windows gave the necessary light. Windows have always been the stumbling block of the revived Greek style, and the application of the revival to a modern structure requires the omission of the windows.

204. Fitzwilliam Museum.—The Fitzwilliam Museum, at Cambridge, Fig. 84, is a well-proportioned structure, whose purpose requires no windows and therefore fits itself to the style. The arrangement of the portico, the treatment of the pilasters, and the molding of the cornice

are decidedly more suggestive of Roman than of Greek models, showing how inefficient the pure Greek design is to a purely modern purpose.

205. St. George's Hall.—St. George's Hall, at Liverpool, Fig. 85, is a building whose imposing peristyle and projecting porches are decidedly Greek in spirit, though the plan and details are decidedly Roman. The utility of the

FIG. 85

building, however, is sacrificed to a certain extent, as the colonnade cuts off the light and is an utterly useless appendage, except to stamp the design as belonging to the efforts of the Greek revival.

206. Royal Exchange.—The Royal Exchange, at London, Fig. 86, presents a portico that would be more suitable for a Roman temple than for a modern business building. Behind this portico, the window openings are hidden in the effort to render them subordinate to the classic detail.

207. It will thus be seen that in England, as in Germany, the application of the architecture of the age of Pericles to the structures of the 19th century was found to be impracticable. After repeated efforts and many failures, the style was abandoned and has ceased to be practiced, except in rare instances, down to the present day.

FIG. 86

RECENT ARCHITECTURE IN EUROPE

208. Up to this point, the progress of architecture and the development of architectural styles, from the days of ancient Egypt to the middle of the 19th century, have been treated. It has been shown how the characteristic details of Greek architecture grew out of constructive principles; how these details were adopted by the Romans and used as decorative adjuncts to their triumphs of engineering skill, while the structural device that called them into existence was ignored; and how the engineering science of the Romans was developed and improved on by both the Byzantine and the Gothic system of construction. But with these styles, *architectural* construction ceases to exist. With the Renaissance, architectural design and architectural construction were separate and distinct considerations. With the Classic-Revival period, construction and arrangement of plan were each an independent problem, and the dawn of the 19th century found architecture in a thoroughly misunderstood condition.

The past century has been preeminently one of progress, particularly in scientific, mechanical, and commercial lines, and the demand for utility in every structural detail has prevented architecture from taking its proper place in the march of progress. Nevertheless, the artistic spirit has not been entirely crushed out by commercialism, and the numerous international exhibitions, the increase in the number of museums, schools of art, etc., have wakened a latent desire for something more than merely utilitarian construction.

209. France, Germany, and England are the countries that must be looked to for modern development. Italy never emerged from the style of the Renaissance; Spain lost her power in the beginning of the 17th century, and repeated invasions and internal revolutions prevented any

F

architectural advancement; while Holland and Belgium were so concerned in the political changes of Spain, France, and England, that little time was devoted to the fine arts other than painting.

210. In France, the School of Fine Arts, at Paris, systematized and unified the national architecture, but at the same time prevented a free development of ideas. In consequence, French architecture has adhered to the principles of the Renaissance, though slight breaks have occurred in the progress of a modern Renaissance development. These breaks were in the form of an attempt to introduce the Greek Revival, which failed, and a strong Revived Gothic movement, represented by a very able and celebrated architect and writer, Viollet-le-Duc. The Gothic movement produced no very important buildings, but it was fruitful in the restoration of a great many medieval churches and castles, which would otherwise have gone to ruin.

211. The reign of Napoleon III (1852 to 1870) was a period of exceptional activity, especially in Paris. The Louvre was finally completed by two architects, Visconti and Lefuel; the Tuileries was partly remodeled and completed by the same architects; the New Opera House was built by Garnier; and numerous public fountains, elaborate in design and construction, were erected in streets, which were remodeled and extended at this time, making Paris one of the most monumental cities in the world.

212. **The Completed Louvre.**—Fig. 87 shows the outer court of the Louvre, facing the Place du Carrousel. The treatment of the two facing wings constitute one of the most notable examples of modern French architecture. Fig. 88 shows the Pavilion Richelieu in the center of the above façade, from the details of which the character of the design may be more closely observed. In Fig. 89, another pavilion is shown, in which the characteristic mansard roof is introduced. The ornamental details of these façades are extremely refined and beautifully proportioned, and show plainly the influence of the National School of Fine Arts.

Nothing in the designs exists there without a reason—either traditional or structural—and all is harmonized according to a well-governed system practiced in the French school of art.

Fig. 88

There are certain defects, to be sure, but the critic must hunt for them, as they are not glaring, and they are so outweighed by the good points that there can be no hesitancy in commending the design as successful from every point of view.

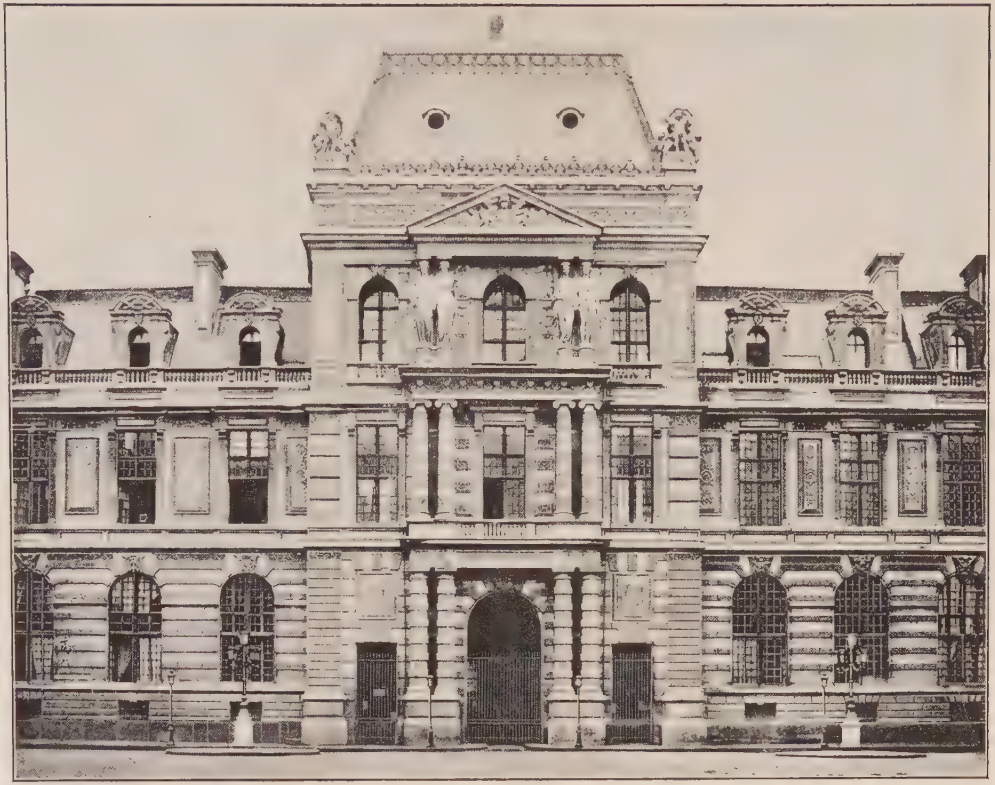

FIG. 89

213. Academy of Music at Paris.—The Academy of Music, or Paris Opera House, by Garnier, Fig. 90, built between 1863 and 1875, stands next to the Louvre in importance as a national monument. This structure is by far the most elaborate and richly decorated building for amusements in the world, but in purity of detail and harmony and refinement of its design is far inferior to the Louvre. In this structure the public taste for gorgeousness is catered to, rather than the demand of the refined intellect for harmony of proportion. This façade loudly proclaims the sentiment, "The nation is rich and can afford to spend its money on elaborate carvings, bas-reliefs, and painted frescos." In contrast to this, consider the ancient Greek structures, whose every detail proclaimed, not wealth and egotism, but intellectual development and refined appreciation.

214. The systematic study required by the National School of Fine Arts, the restrictions of the government as to those who shall practice architecture, and the thorough education of the artisans, whose fathers have followed the same trade for generations back, have all combined to place French architecture and the French style in design ahead of the rest of the world at the present day. While England has been wavering between two antagonistic styles and Germany has vainly struggled with her classic forms, France has steadily advanced in the development of a modern school of Renaissance.

France, England, and Italy all have educational institutions where architecture is taught as a profession, but there can be little doubt that the School of Fine Arts in Paris has thus far accomplished the most satisfactory results.

This may seem strange when one considers that it was from Italy that the Renaissance style emanated, but it is also a fact that the Renaissance architects of Italy were sculptors, painters, and literary men rather than constructors, while the French Renaissance architects had been long trained in Gothic construction before studying the Italian system of design.

FIG. 90

GOTHIC REVIVAL

215. About the middle of the 19th century, a number of enthusiastic students of the British medieval monuments endeavored to revive the Gothic as a national style of architecture. These enthusiasts were bitterly opposed by the practicing architects of the Classic Revival, and the arguments became so active that in the principal art societies all discussion of the relative merits of the two styles was suppressed.

The revived Gothic, however, is not the same as that of the 12th century, although when the style was first revived, the general tendency of the practice was to make every detail archeologically correct; but it was soon learned that medieval Gothic was no better suited to modern requirements than the classic Greek or Roman. Between the years 1850 and 1870, the striving for historical correctness of detail gave place to a rational effort to adapt Gothic principles to modern requirements, instead of merely copying extinct styles, and the result is a number of extremely interesting buildings.

216. Parliament Houses at Westminster.—Chief among structures of this class are the Parliament Houses, at Westminster, Fig. 91, designed by Sir Charles Barry, in the style of the Perpendicular period. This immense structure is the most successful edifice in the Victorian Gothic style. Its masses are simple and its detail is well studied and refined, while the entire composition is dignified and imposing. It is defective, however, in the proportioning of its details to the general mass. The details are made to appear insignificant by the vastness of their surroundings, and the two principal towers—one at the angle and the other in the center—are out of proportion to the building and to each other. The central tower would appear much more

FIG. 91

imposing if not dwarfed by the great Victoria Tower at the angle, while the latter would harmonize with its flanking façades if it were smaller and better proportioned to their details.

217. Other buildings designed in this style were inclined to the same excesses, so that at the present day architecture in Great Britain is suffering from the same uncertainty as at the beginning of the 19th century—some architects still favoring the Gothic, while others are designing in the style of the Renaissance, and still others are endeavoring to draw an inspiration from the revived Classic.

This is not an artistic age, and the striving for originality in design is preventing the advancement of architecture along healthy and rational lines.

As there never was a general acceptance of either contention the movement was confined almost exclusively to church building. It was argued that a small building could not be Gothic in its stricter sense, as there was no vaulting, and that a castle or fortress was theoretically not Gothic, as its vaults were sustained by enormously thick walls instead of by flying buttresses. Therefore, as structural iron and tile blocks were suitable for fireproof roofing, vaulting had become obsolete and without vaulting Gothic architecture could not exist.

Many parish churches were erected, however, in what was intended to be a pure modern Gothic; but while many were carefully studying the medieval moldings and details that were to be duplicated in projected structures, others were experimenting with the effects of Italian Gothic with its polychromic decoration and with French Gothic with its rich effect in sculpture.

What was afterwards termed Victorian Gothic was in many instances English Gothic materially altered by the introduction of Italian and French detail, principally details in colored marbles, patterns of brickwork, and sculptured figures.

AMERICAN ARCHITECTURE

EARLY COLONIAL PERIOD

218. The successful colonization of America was not accomplished until the beginning of the 17th century, and the hardships of the colonists were at first so great that little attention was given to architectural development until the beginning of the 18th century. Buildings of stone were not undertaken by the early English colonists, though brick structures were erected in the southern and Dutch colonies.

About the beginning of the 18th century, the influence of Wren's designs in England began to exert itself to a small extent in the southern English colonies, though the structures were nearly all erected of wood or of brick and wood. From 1725 to the Revolution, the population increased along the coast, and with the gradual acquirement of wealth there was an advancement in the character of the architecture, as seen in the dwellings and churches of the American aristocracy. During this period, the development of what is now known as the *Colonial style* took place. It was based on ideas drawn from the classic in England, particularly that phase of the revival which appeared during the reigns of Queen Anne and the Georges. The details, however, were extensively modified by the use of wood instead of stone and by the employment of designers that were not educated and trained in the Old-World architectural traditions. The style, especially in interior design, exhibited the taste and culture of the colonial aristocracy in its delicate and refined treatment of the woodwork, but there were no buildings erected in this style that were of a really monumental character. Stone edifices were very scarce, and the administrative buildings of the principal cities were small, unpretentious structures, built within the insufficient grants of the king.

219. Besides the British settlements in America there were, before the colonies achieved their independence, sections settled by Holland, Spain, and France, and many of the New England settlers sojourned a long time in Holland before sailing for America. The architecture of each of these countries, therefore, influenced the style of the new Republic, as the local precedents were followed even after England controlled the coast settlements that were afterwards to constitute the first thirteen states, and English architectural style was to predominate in the best buildings.

New York was settled by the Dutch, and their characteristics affected the architecture of the Hudson valley settlements up to the Mohawk river. Florida was settled by the Spanish, and although it did not come into the United States until 1812, its Spanish architecture influenced the coast colonies as far north as South Carolina.

The dwellings exhibit clearly the different tastes of the different colonies, though they all possess features of common origin in the mother country. In Maryland and Virginia, which were colonized by a wealthy class of English subjects, are found fine brick manor houses and extensive grounds. The grounds are surrounded by high brick walls and are entered through broad gates of artistic design. The interiors of these southern colonial houses are usually very elaborate, the side walls of the large high-ceilinged rooms being decorated with stenciled or frescoed patterns of the urn and festoon of the Adam brothers in England. Rich mahogany sideboards of Sheraton design and bandy-legged furniture of Chippendale, together with broad open fireplaces, suggestive of the reign of Elizabeth, form characteristics inseparable from the spirit of the design of the American colonial manor house of Maryland or Virginia.

220. In New England, the majority of the residences were of wood. The plans were more compact, and the exteriors were more picturesque, but they were lacking in the dignity and stateliness of the southern manor. The interior details, wainscots, cornices, stairs, mantels, etc.,

were essentially the same as in the South, and each showed a skilful adaptation of the classic forms and details to the slender proportions of a wood construction. Externally, the orders appear as supporting details for veranda and porch roofs, and in the form of colossal pilasters flanking and subdividing the façades, as shown in Fig. 92, which is a view of the old Cragie House, at Cambridge, Massachusetts, built in 1757, and afterwards the residence of Henry W. Longfellow.

The interest in American colonial architecture lies chiefly in the taste and ingenuity displayed in the translation of

Fig. 92

classic details from stone into wood. The American colonists were of English descent, and, persecuted though they may have been, they loved their mother country, and far from desiring to start any sort of an independent style of their own, they copied their designs from the contemporary English style, and erected in wood what they had not the means nor the skill to carve in stone, and took pride in the accuracy with which they adhered to the details of the parent style.

EARLY REPUBLICAN PERIOD

221. After the Revolutionary War, the new conditions of independence and self-government caused the American people to take a new interest in building projects and to undertake the erection of structures that should be monumental as well as purely useful. Capitols and other buildings for the national and state governments, and municipal buildings in the cities, were erected at this time, and though the style was after the late Renaissance of Wren and his followers, there was a considerable admixture of French details, due no doubt to the active sympathy of the French people during the war.

222. **Capitol at Washington.**—The United States Capitol, at Washington, Fig. 93, was commenced in 1793, and consisted of the central portion of the present building, without the dome. The rusticated basement and high-columned portico, together with the pedimented windows in the first story and the square masonry openings above, are strongly suggestive of the façade of Somerset House, Fig. 73, and it is not improbable that Thornton, Hallet, and Latrobe, the successive architects, drew more or less inspiration from that edifice. The building was not finally completed until the year 1830, when, under the supervision of Charles Bulfinch, the two flanking wings were added, thus making this monumental structure one of the finest legislative palaces in the world.

223. The dome is the principal feature. It rises from the ground line to the top of the statue of liberty, which surmounts it, a height of 287 feet, while its diameter inside is 94 feet. This dome is smaller than the dome of St. Paul's, London, but in design is quite as imposing as the creation of Sir Christopher Wren.

The dome over the Pantheon, at Rome, is a concrete vault supported by massive walls. The dome over Hagia Sophia, at Constantinople, is a masonry construction supported on four immense piers. The dome over St. Peter's is constructed in two shells, the inner one for interior effect

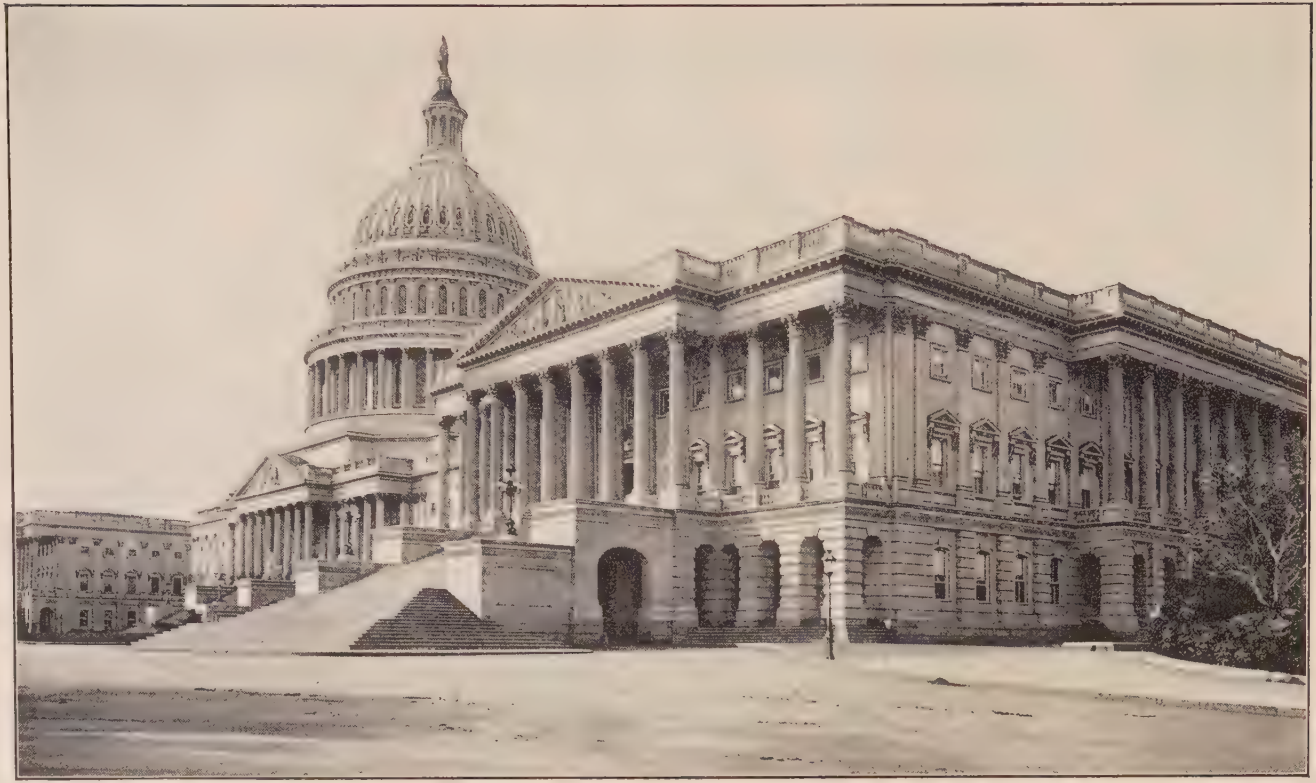

FIG. 93

and the outer one for exterior effect. Over the Hôtel des Invalides is a stone inner dome and a lead-covered outer dome of wood, while St. Paul's Church, at London, has an inner dome of stone, an outer dome of wood, and between them a tall cone of brick to carry the stone lantern above the wooden roof. There has thus been an advancement in the combination of design from an artistic standpoint and design from a structural consideration, but the advancement has been at the expense of architectural honesty and truthfulness. The exterior dome in these latter-day constructions is not what it claims to be by appearance—namely, the roof over a portion of the interior of the building—but is an exterior roof over an interior ceiling, with no connection or relation to the structural requirements of the interior at all. Down to the building of the United States Capitol, it was traditionally assumed that the architectural dignity of the structure required at least one of these domes to be of masonry construction, in order to be solid, substantial, and fireproof. But the design of the dome at Washington set aside all traditions, and called for a construction of one single material, namely, iron. No wood or stone is used anywhere in the dome. The absence of the former certainly insures it against fire, but the details are so suggestive of stone construction that the design is even more untruthful than St. Paul's. A vast shell of wrought-iron trusses, cast-iron columns, and sheet-iron covering is so treated as to appear like an architectural composition of stone; and though the details are well proportioned and refined, it detracts from the harmony to know that those details are products, not of the stone-carver's art, but of the pattern-maker's and the ironworker's skill.

224. White House.—The White House, Fig. 94, is the name given to the executive mansion, or residence of the president of the United States. This structure, commenced in 1792, is a typical example of the Classic Revival in America. It was designed by James Hoban, an Irishman, who patterned it somewhat after the house of the Duke of

Leicester, at Dublin. This, and the fact that it exceeded in size any private dwelling in America, gave cause for much opposition, and made Congress slow in providing the necessary appropriations. The building is constructed of sandstone, and several heavy coats of white paint applied to protect the stone from climatic influences caused the building to become known by its present name.

225. University of Virginia.—The University of Virginia, at Charlottesville, another classic edifice, was designed by Thomas Jefferson, the third president of the

Fig. 94

United States. The fact that Jefferson was an architect had much to do with the activity in building design at this period.

226. Girard College.—Another educational institution, Girard College, at Philadelphia, Fig. 95, shows to what extremes the Classic Revival was carried even in America. This building is designed to appear as a Roman temple. It is 218 feet long and 159 feet wide, and with its columns 6 feet in diameter and 55 feet in height, its marble exterior might have rivaled the Walhalla, were it not for the fact that instead of a cella, the colonnade encloses a very ordinary two-storied college building. Its details are well executed,

however, and its designer, in applying the elements of a Roman temple to the purposes of a modern college, was committing no greater error than his contemporaries on the other side of the sea, who had been endeavoring to accomplish similar impossibilities for three decades.

227. Other American Examples.—Other existing examples of the Classic Revival in America are the Treasury and Patent-Office Buildings in Washington, and the Subtreasury and old Custom House building in New York.

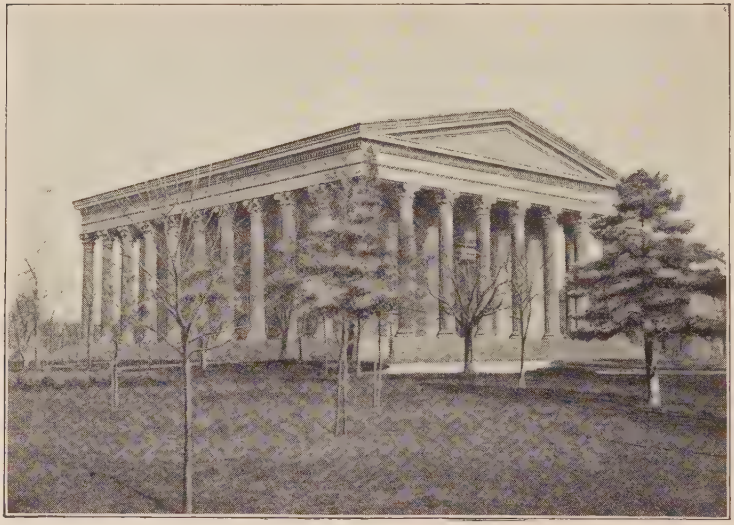

FIG. 95

228. Trinity and Grace Churches.—The decline of the Classic Revival, and the rise of the Victorian Gothic, in England, immediately found its echo in America, and Trinity Church, in New York, Fig. 96, designed by Upjohn, in 1843, as well as Grace Church, by Renwick, are worthy examples of modern Gothic work.

229. American Architects.—Between 1870 and 1880, the disastrous fires at Chicago and Boston gave opportunities for architectural improvement in those cities and greatly stimulated public interest in the art.

The establishment of architectural schools in Boston and New York, and the opening of public museums of art in the principal cities, caused the American public to wake up and be more critical of the things around them and to demand a higher grade of architectural design.

Fig. 96.

At this time the personal influence of two men comes into great prominence: Richard M. Hunt (born 1827, died 1895), and Henry Hobson Richardson (born 1828, died 1886). These men, educated at the French National School of Architecture, showed the American public that architecture was a fine art and not a mechanical trade, and made the

people understand that the architecture of a country was the key to the education, refinement, and social condition of its inhabitants.

230. In Hunt's office, many of the most prominent American architects of the present day received their early training, while the works of Richardson exhibited such an independence of the prevailing styles in foreign countries, and at the same time so well suited the purposes for which

FIG. 97

they were erected, that, had his successors and followers understood the art better, a new style of architecture would likely have evolved.

Trinity Church, at Boston, Fig. 97, is considered one of Richardson's masterpieces. The design is what might be termed Romanesque, not in the sense of an adaptation of 10th-century Romanesque to American ideas, but an application of the Roman-arched construction to the 19th-century conditions. Broad, blank wall spaces of rock-faced masonry

are left where windows were not required, thereby presenting a rough, gladiator-like expression of crudity, characteristic of the period when the architecture of every country of Europe was feeling its way from the rejected classic arch toward the perfected Gothic vault. This architecture of Richardson's was true in its construction. Everything was real; no false domes nor senseless pilasters crowned the roof or graced the walls. Everything existed because it was needed, and details not wanted were omitted, without any attempt to fill blank wall spaces with relieving ornaments.

231. The opening of the French National School of Fine Arts to American students had a marked effect on the art education of the American people. Libraries were stocked with architectural works that would have been too expensive to have been purchased by the individual student, and all the important journals and publications of the day were soon at the service of ambitious students.

The great Public Library, at Boston, Fig. 98, is one of the largest and most important of these educational institutions. It was designed by McKim, Mead, & White, a firm of architects prominent through their adaptations of the designs of some of the best buildings of Europe to American uses. The Boston Library was an American rendering of the Library of St. Genevieve, at Paris. The New York State Building at the World's Fair, Chicago, by the same architects, was patterned after the Villa Medici (see Fig. 19). The tower of the Madison Square Garden, Fig. 99, is a very clever adaptation of the Giralda, at Seville (see *History of Architecture and Ornament*, Part 3, Fig. 83). The Herald Building in New York City presents a modified design after the Palace Consiglio, Fig. 5 (*b*). This adaptation of individual buildings is certainly not the highest form of art, but it presented for the study of the people a variety of good designs, which made them more appreciative of the architectural merits of their cities than would a lot of more original, more artistic, but less successful compositions.

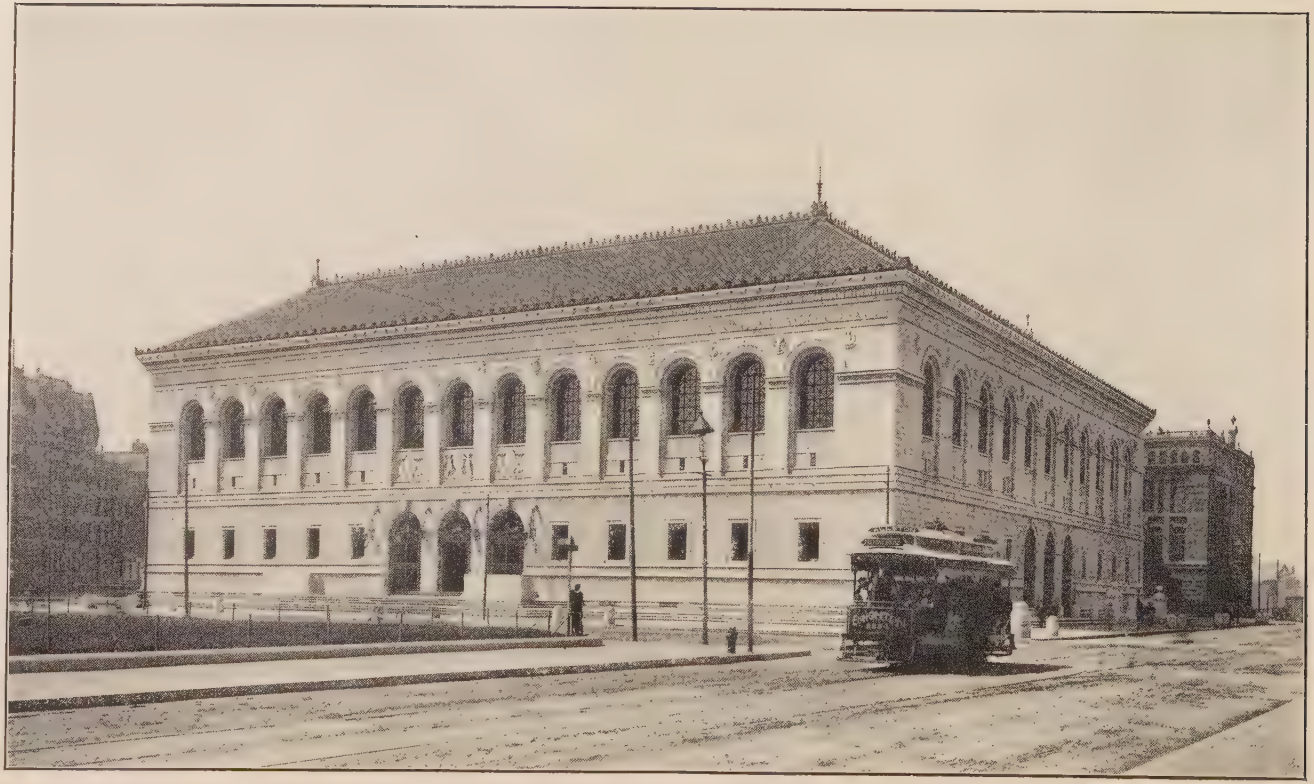

FIG. 98

232. Richardson designed and built about fifty prominent buildings in all parts of the United States, among which are the Court House at Allegheny, Pennsylvania; parts of the Capitol at Albany, New York; Armory at Detroit, Michigan; State Asylum at Buffalo, New York; and also the exhibition building at Cordova, in Argentine Republic, South America.

FIG. 99

Richard M. Hunt was more identified with residential architecture than with public buildings, and though his designs for mansions and villas were harmonious and above reproach, and are represented by the most elaborate and expensive dwellings in America, his great service to the profession, and indirectly to the architectural elevation of

the country, was in his establishment, in his office, of a regular system of instruction and training for architectural students. Much of the better architecture of the present day is due to this system and to those who studied under it. One of these students was William R. Ware, Emeritus Professor of Architecture at Columbia University and author of a number of architectural books, especially prepared for students' use. Among these is a treatise on the architectural orders, entitled The American Vignola, which discusses the orders as they are used in modern practice and provides a simple system of portraying them under a modern system of measurement. Another architectural writer of prominence that studied under Mr. Hunt is Henry Van Brunt, who is author of several essays upon styles and buildings that are of deep interest to the architectural student. Several architects prominent in American practice received their schooling in this office, among whom are Post, of New York; Furness, of Philadelphia; and Gambrill, who, until his death, was the partner of Richardson. Each of these men carried into his own practice the systematic style of Hunt's methods of working, and helped establish in the general architecture of their several localities an appreciation of the value of good architectural composition.

233. Hunt's early architectural training commenced at the age of fifteen when he went to Geneva and studied with Darier. At twenty he entered the School of Fine Arts under the direction of Hector Lefuel, the government architect. Hunt then traveled about Europe, Egypt, and Asia Minor until 1854, when he returned to Paris and rejoined Lefuel, who was then engaged in completing the northern gallery of the Louvre, the most important feature of which was to be the central pavilion. As a pupil of Lefuel's, Hunt designed this pavilion, and it was erected, with but slight alteration, under his personal supervision, when afterwards he was appointed inspector of the works.

Thus it was that one of the most important structures in modern French architecture was designed and erected by

an American architect. Later Hunt came to America and was associated with Walter in the extension of the Capitol at Washington, after which he moved to New York and opened an office where he received students for architectural training similar to that which he had obtained in Paris. It is not surprising to find Hunt's designs all more or less influenced by the French style and school of design. For many years Hunt was the best-known architect in America,

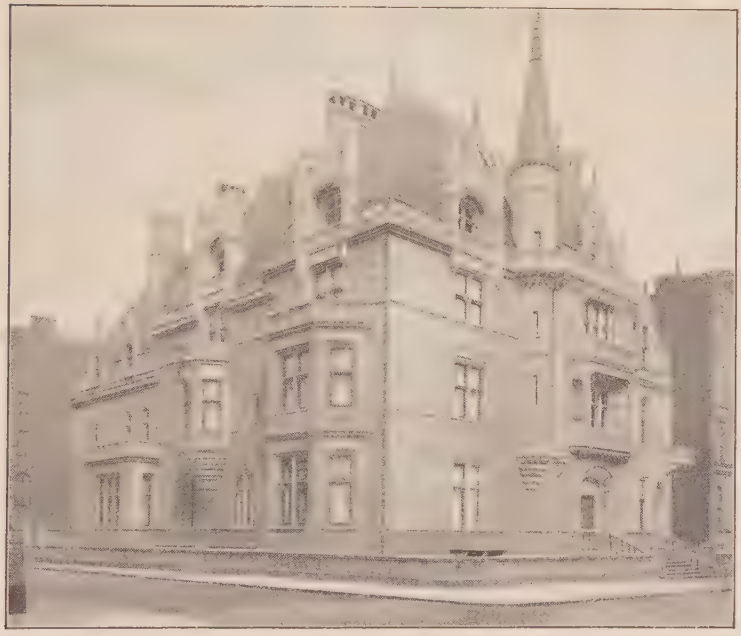

Fig. 100

and although he did not erect many public buildings, his residence designs are numerous. Among his principal works are Biltmore House at Asheville, North Carolina, a vast residence in the mountains, strongly suggesting the Francis I châteaux along the Loire; "Marble Hall" and the "Breakers," two residences at Newport in the later and more classic Renaissance; the W. K. Vanderbilt house, New York, Fig. 100, which is a most dainty piece of early Renaissance

work, strongly suggesting Chenonceau and Azay-le-Rideau, but well adapted to its urban position at the intersection of two of New York's busiest residence streets. He also built the Administration building of the Columbian Exposition, Chicago, the Lenox Library, New York, the National Observatory, Washington, and two buildings of the West Point Military Academy.

CONCLUSION

234. A review of a larger number of buildings erected in the 19th century would show no idea or development of greater importance than those already referred to, and as architects today are no nearer the invention of a new style than they were 200 years ago, the examples given are sufficient to show the progress made in this direction. The questions are often asked, Why do the architects of today copy ancient forms and never invent new ones? Why must all architecture be a reproduction of the Renaissance, Romanesque, or Gothic styles, and never strictly original and peculiar to the present time?

These questions may thus be answered: It should first be borne in mind that there are only two original styles of architecture—the *pagan* and the *Christian*, otherwise called the *classic* and the *Gothic*. All other styles, at best, are only diversified forms, affected by local combinations, mannerisms, and individual caprice. Thus, the natural tendency in the practice of architecture has always been little more than imitative of the past, a radical change having been accomplished only through the inspiration or enthusiasm of some grand religious, political, or social revolution. The conquest of Greece by the Romans gave birth to the Roman style of architecture, which was a combination of Greek design and Roman construction. The growth of Christianity produced the Romanesque style in the effort to adapt Roman design to a more economical system of construction. The Gothic was developed from the Romanesque construction when the traditions of Roman design were lost during the Dark Ages.

235. The enlightenment and education of the people toward the close of the 15th century enabled them to read for themselves what had heretofore been taught only by the priests; enabled them to judge for themselves what before had been interpreted only by the clergy. Different opinions thus arose, which led to a division of the Church. The introduction of pagan forms and details and the imitation of Roman luxuries and extravagances, mark the character of the Renaissance period, while the Classic and Gothic Revivals show the tendency of one class toward the intemperate admiration of heathen art, while the other class, led by the Church, endeavored to instil into the world at large a proper love and admiration for Christian forms.

Thus, it will be seen that in modeling after preexisting forms, architects of today are simply following the course that has been pursued ever since the infancy of art.

REVIEW EXERCISES

1. (*a*) What influences led to the Classic Revival in the several European countries? (*b*) What was the effect of the Classic Revival?

2. Name a building characteristic of the Classic-Revival period in (*a*) France, (*b*) Germany, (*c*) England. (*d*) Describe each.

3. What are the existing conditions affecting the development of architectural style in (*a*) France? (*b*) England?

4. (*a*) What are the characteristics of Victorian Gothic? (*b*) What is the most important building in this style?

5. What are the characteristics of Early Colonial architecture in America?

6. What American buildings reflect the influences of the (*a*) Classic Revival in England? (*b*) Gothic Revival in England?

7. What two American architects influenced the development of the architecture in the United States?

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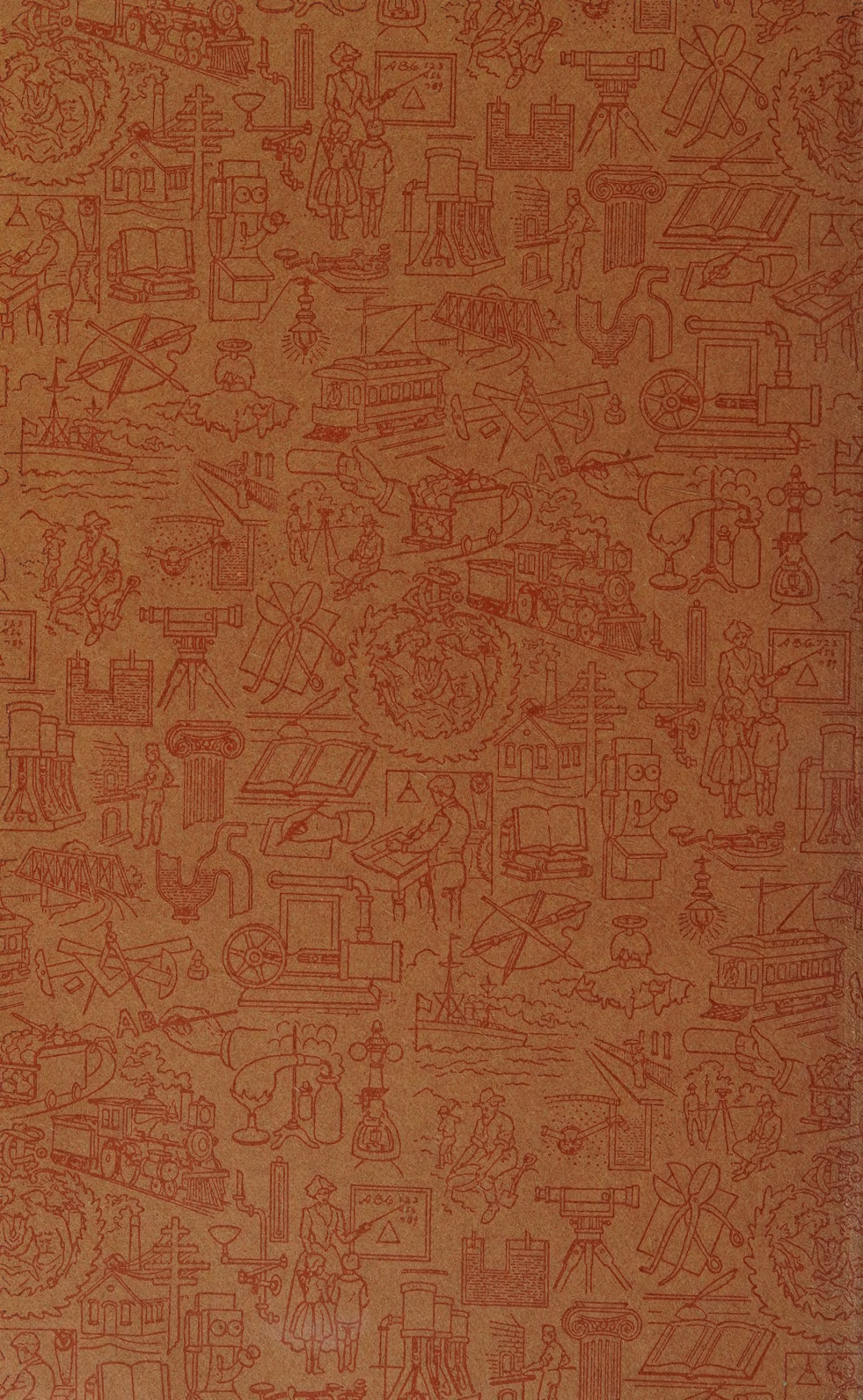
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